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ART. I.—*Aneurism of the Common Carotid Artery, being an Analysis of Seventeen Cases of this disease.* By ROBERT S. WENDEL, M.D., of Murfreesboro, Tennessee.*

Aneurism, in whatever part of the body occurring, has always been considered an interesting disease to the surgeon, and a dangerous one to the patient. The opinions of the ancients relative to this disease were both vague and unsatisfac-

* We regret that our limits do not permit us to insert the whole of this excellent paper, embracing, as it does, the most elaborate account of the nature and treatment of aneurism of the primitive carotid artery with which we are acquainted. It occupies sixty-eight pages of manuscript, and forms the Inaugural Dissertation which Mr. Wendel submitted, last spring, to the President, Managers and Faculty of the Louisville Medical Institute, for the degree of Doctor of Medicine. The essay is illustrated by beautiful diagrams, and reflects much credit upon the author.—EDS.

tory, and to no artery is this remark more applicable than to the carotid. Ignorant of the anatomy and physiology of the brain, and of the arteries supplying it with blood, aneurisms of the carotid were permitted to take their own course, it being not even pretended to ligate that vessel for fear of injuring the functions of that important organ. "A case is given by John Bell, in which, so late as the year 1807 or 1808, a poor woman was suffered to perish by hemorrhage from the sac under the eyes of himself and colleagues, a whole college of surgeons, at that particular period, claiming to be surgeons to the Royal Infirmary of Edinburgh."†

That a ligature applied to this vessel will not injure the brain has long since been proved, and even both carotids have been tied in the human subject, with but a short period of time intervening, without any ill effects arising.

Cases are also recorded in which, on post-mortem examination, one or both carotids were totally obstructed, without any impairment of the intellect having been noticed during life.

The first instance in which the carotid was tied is mentioned in Benjamin Bell's Surgery. The operation was performed on account of a wound in extirpating a tumour. Mr. Abernethy is said to have tied it next, and after him, Mr. Fleming, a naval surgeon, in 1803; in both cases for wounds.

Sir Astley Cooper, however, was the first who tied this vessel for aneurism, but the case was unsuccessful. The ligation of the carotid may now be considered an every-day operation, being frequently performed for wounds, aneurisms, and as a preliminary measure in the extirpation of tumours about the face; though this latter has now partly fallen into disuse.

The carotid is not so often affected with aneurism as is generally supposed. Out of sixty-three cases of the disease reported by Mr. Hodgson, this artery was affected in only two instances, both occurring in males, while of the ascend-

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* Liston's Operative Surgery.

ing aorta, arteria innominata, and aortic arch, there were twenty-one cases, descending aorta eight, subclavian and axillary five, inguinal and popliteal fifteen. Of these sixty-three cases only seven occurred in females.

Out of one hundred and seventy-nine cases drawn up by Mons. Lisfranc, exclusive of those of the aorta, there were seventeen cases in which the carotid was affected.

Diagnosis.—Aneurisms of the carotid artery are liable to be confounded with other diseases. They may be mistaken for scrofulous enlargement of the lymphatic ganglions, encysted tumors, goitre and dilatation of the internal jugular vein.

The lymphatic ganglious, situated along the antero-lateral aspect of the neck, often become enlarged, and receiving the impulse of the carotid artery, may simulate aneurism of that vessel. The disease generally occurs in young subjects, and is attended by all the marks of a scrofulous diathesis, such as a fair skin, light hair and eyes, tumid lips and abdomen, and precocious intellect. The tumor is hard to the touch, inelastic, irregularly lobulated, and commonly longer in the vertical than in the horizontal direction.

It is easily influenced in its volume and consistence, by exposure to cold, and by the state of the constitution.

In the early stage of the disease, it is moveable and may be lifted away from the surrounding parts; by and by, however, it contracts adhesions, and becomes fixed in its situation. In many cases it is disposed to run into suppuration; the skin assumes a livid or purplish appearance, and the tumour at length yields at one or more points, discharging a thin yellowish matter intermixed with curdy flakes.

Hydrocele of the neck may also be mistaken for this disease. "The characters, however, by which the former may be distinguished from other affections, are, absence of pain, and tenderness on pressure, slight fluctuation, the slow progress of the tumour, years generally elapsing before it attains much development, and, above all, the history of the case. When the tumour projects outwardly over the carotid artery

it might be mistaken for aneurism, from which, however, it may, in general, be readily discriminated, by the elevation of the entire swelling from the impulse of the blood, and by the want of that alternate expansion, and retrocession, which are present in genuine aneurism."*

Aneurism of the carotid artery cannot always be easily distinguished from bronchocele or goitre. In the latter disease the tumour is comparatively insensible, devoid of pulsation, irregular in its consistence, being soft at some points, and hard at others, and more or less moveable. During deglutition, it accompanies the motions of the trachea and larynx. It is more common in the female than in the male, and is almost always very tardy in its growth, years elapsing before it attains much volume. Aneurism, on the contrary, progresses comparatively rapidly, the swelling is of pretty uniform consistence, does not follow the movements of the wind-pipe, imparts a distinct pulsation to the finger, and may be emptied of its contents by pressure along the course of the vessel, in which it is situated. When the tumour is large, the beating is generally distinguishable at the distance of a few feet from the patient, and if the ear be applied to the surface of the aneurism, the blood is heard to rush into it with a peculiar whizzing noise. In most instances of aneurism, also, the vessel is deeper seated than goitre, and the pulsation is so strong as scarcely to be mistaken.

When goitre, however, is extensive, and the pulsations of the carotid are freely communicated to it, the diagnosis will be difficult, if not impossible. A case of this kind, in which some of the most able practitioners of Philadelphia were deceived, is related by the late Dr. Griffiths in the ninth volume of the Eclectic Repository. The tumour was situated directly over the course of the carotid, and was pronounced by Dr. Chapman, Dr. Morgan, and the late Dr. Dorsey, to be of an aneurismal nature. The patient at length died, and upon dissection, Dr. Parrish ascertained that the vessel in

* Gross' Liston.

question was perfectly sound, and that the tumour was composed entirely of the thyroid gland. The neck was very short, the pulsation of the artery was imparted to the swelling, there was even a strong resemblance to the aneurismal thrill, and the morbid growth adhered so firmly to the surrounding parts that it could not be drawn away from them.

Another case, quite as remarkable, occurred some years ago in Paris. A creole negro had a tumour in the neck, which was submitted to the inspection of nearly all the distinguished surgeons of that metropolis, who pronounced the disease an aneurism of the carotid artery. The patient afterwards died of some other malady, when it was ascertained by Boyer that no such affection had existed, but simply an extensive enlargement of the lymphatic ganglions of the neck.

Aneurism of the carotid artery may also be mistaken for dilatation of the internal jugular vein. The latter, however, is a very rare affection, and the tumour is generally situated very low in the cervical region, appearing just above the sternum. It is also softer and more compressible than a true aneurismal swelling; the pulsation is more feeble and tremulous, the dilatation disappears when pressure is applied to the upper part of the vessel, and the turgescence is more diffused in its diameter, reaching sometime as high nearly as the angle of the jaw.

Aneurisms of the arch of the aorta are also liable to be confounded with this disease. "Aneurisms of long standing, which no longer throb, and the integuments over which are changed in color and likely to burst, may easily be mistaken for chronic abscesses, as the neck is frequently the seat of such diseases."*

Whenever any doubt exists as to the true nature of a tumour it may at once be dispelled by the introduction of a cataract needle or a delicate trocar.

Spontaneous cure.—Aneurisms of the carotid artery, like

* Cooper's Surgical Dictionary.

the same disease in other parts of the body occasionally undergoes a spontaneous cure. This, however, is of rare occurrence. The manner in which a spontaneous cure may take place is thus described by Mr. Wardrop.

1st. By the aneurismal sac being so strengthened and filled with coagulable lymph, that no fluid blood can pass into it, and of course all danger of rupture is prevented, whilst at the same time the original canal of the vessel remains pervious and carries on the circulation.

2d. By not only the sac being filled with coagulable lymph, but by the arterial canal being also obliterated.

3d. By the tumour acquiring such a size and position, that by pressing on the trunk of the artery, above or below, the sides of the aneurism are thus brought into contact and adhere.

4th. A spontaneous cure of aneurism has also been known to take place where the whole circumference of the vessel has been dilated, the sac being filled up with coagulum, but leaving a canal in the midst of the tumour through which the blood continued to pass.

5th. By a process of suppuration taking place in the sac after both it and the artery, both above and below the tumour, have been filled with coagulum. In such a case the integuments ulcerate, and a great quantity of the coagulum is discharged through the opening, which must be removed by the process of absorption.

The common tendency, however, of the disease is to a fatal termination, and the patient should therefore be placed under treatment, as soon as the nature of the lesion is ascertained.

The Hunterian operation was performed in nine cases. Of these, four occurred in females, and but three, or just one-third, terminated fatally. Of the latter, one died on the twenty-first day from inflammation of the sac, which extended to the base of the brain; one on the sixty-seventh from inflammation and repeated hemorrhages; and in one, that of Mr. Cline, no dissection is given.

In six of the cases, the disease occurred on the right side, in one on the left, in one on both sides (though the artery of but one side was tied) and in one, the situation is not given.

The occupation of the patients is given in only five of the cases; of these, two were laborers, one a porter, one a sportsman, and one a prostitute.

The cause of the disease is stated in but four. In two, it was brought on by a fall from a horse; in one, it was noticed soon after the man carried a heavy load on his back, and in one it was produced by a wound.

The duration of the disease, prior to the ligation of the artery, is noticed in all of the cases, except three. In one, it had existed six months, in one three months and a half, in one eleven months, in one eleven days, in one three months, in one three years.

The volume of the tumour, in four, was *very large*, in one five inches in length, by four in depth, in one of the size of a large walnut, in one the size of a walnut, in one of an egg, and in one as large as a goose egg.

The length of time required in performing the operation is not stated in a single instance.

In three of the cases two ligatures were used, and in one of these, the artery was divided between them, as recommended by Mr. Abernethy. In this case there was a difference of forty-eight hours in the separation of the ligatures, the upper coming away on the fifteenth day of the operation, the lower on the seventeenth.

In the remaining two cases both ligatures came away on the same day; that of Mr. Cooper on the twelfth; and that of Dr. Sykes on the tenth day.

In the six cases in which only one ligature was used, it came away on the thirty-ninth day, in one on the eleventh, in one on the twenty-first, and in two the day is not mentioned.

The operation of Brasdor, of applying the ligature to the distal side of the tumour, was performed in six of the cases.

Of these, five were females, and three, or just one-half, terminated fatally.

In case number two, the patient died three months after the operation, of hypertrophy of the heart, and it is likely this was the real cause of her death; at any rate it was a very unfavorable case for an operation of any kind.

The patient mentioned in case four died two months after the operation from repeated hemorrhages, and in case five ulceration of the wound with hemorrhage destroyed the patient eleven days after the operation.

In four of these cases the right carotid was affected; the left in the remaining two.

The occupation of the patients is not given in a single case.

The cause of the disease is mentioned in but three instances. In one, the patient referred it to palpitation of the heart from domestic affliction; in another the patient supposed it to be owing to the night air; and in a third it was referred to severe squeezing. Prior to the deligation of the artery, the disease had existed in these patients from eleven days to three years.

In case one, it was perceived eleven days previous to the operation; in one six months, in one seventeen months, in one several months, in one one month, and in one three years.

The volume of the tumour is noticed in all the cases but one. In three it was very large, in one two inches in diameter by two in breadth, and in one the size of a pullet's egg.

Summary.—The foregoing seventeen cases are all I am able to find in the medical and surgical works which I have examined, and these are by no means few in number. Aneurism of the carotid is generally believed to occur oftener in males than females, agreeing in this respect with that of the different arteries, but in the cases which I have reported, it appears that females were affected in ten instances, while it occurred in only seven males.

The ages of the patients were as follows. In three it occurred between ten and twenty, in two between twenty and thirty, in two between thirty and forty, in three between forty and fifty, in two between fifty and sixty, in two between sixty and seventy, in one between seventy and eighty.

The artery of the left side was affected in five of the cases, the right in ten, in one it occurred on both sides (though the artery of but one side was tied), and in one it is not mentioned.

The occupation of the patients is mentioned in five of the cases only. Of these, there were two laborers, one a porter, one a huntsman, and one a prostitute.

The cause of the disease is stated in only eight instances. In these, it occurred, in two, from wounds, in two it was caused by a fall from a horse, in one from exposure to night air, in one from domestic affliction; it was referred to severe squeezing in one, and in one it was caused by straining the neck.

The existence of the disease, prior to the treatment, is stated in all the cases, except four; varying from eleven days to three years. It was as follows: in two it had existed eleven days, in two one month, in one several months, in one three and a half months, in two six months, in one nine months, in one eleven months, in one seventeen months, and in two three years.

Of the fourteen cases in which the volume of the aneurismal tumour is mentioned it was as follows:

In one it was the size of a hen's egg, in one of a woman's two fists, in one of the volume of an egg, in one of the size of a goose egg, in one of a pullets egg, in one of a walnut, in one of a large walnut, in five very large, in one two and a half inches in breadth, in one five inches in length by four in depth.

The length of time required in performing the operation is noticed only in one case, that of Mr. Montgomery, in which it occupied twenty-five minutes.

In one of the cases cured by Valsalva's method, the patient

was under treatment about eighteen months, while the other was considered as cured in seven months.

In the cases in which one ligature was used, it was cast off, in one, on the eleventh day, in one on the seventeenth, in one on the nineteenth, in one on the twenty-eighth, in one on the thirty-ninth, and in one on the twenty-first. In those in which two ligatures were employed, they separated, in one, on the twelfth day, in one on the tenth, in one the upper came away on the fifteenth, and the lower on the seventeenth, and in six the day is not noticed.

Six, or rather more than one-third, terminated fatally; of these death occurred, in one, on the third day after the operation, in one on the twenty-first, in one on the sixty-seventh, in one in two months, in one in three, and in one in four months.

The cause of death, in two, was inflammation of the sac, hypertrophy of the heart in one, repeated hemorrhage in one, in another death occurred from ulceration and hemorrhage, and in one no dissection is given.

ART. II.—*A description of the Summer and Autumnal Diseases as they occur in the Wabash Valley, and particularly in Posey County, Indiana, and in White County, Illinois.* By ROBERT ROBSON, M.D., of New Harmony, Indiana.

The valley of the Wabash furnishes the most extensive field for observation on all the grades of our summer and autumnal diseases, with which I am acquainted, and it may not be altogether uninteresting to the profession for me to state what my experience has taught me on that subject, during a residence of eighteen years in New Harmony, Posey county, Indiana.

Topography.—The Wabash is a beautiful river, running generally south. Its banks are low and extend back in a rich,

level plain from three to five miles. Harmony is situated back from the river about a quarter or half a mile, on a second bank, and about six or eight feet above high water mark. On the opposite side the ground for many miles above and below this point is four or five miles wide. The lands adjacent to the river are higher than those in the rear. Numerous small bayous lead back and fill up the ponds and cover the low grounds. The face of the country for many miles above and below, in the neighborhood of the river, is generally level. The soil is alluvial and very rich, consisting of sand and black loam. The bottoms are covered with a heavy growth of timber, such as is peculiar to a rich soil, and the great mass of the lands lying opposite the village remains very generally in the natural state. Such of the above lands as are not in cultivation, are, after the month of May, covered with a very rank growth of vegetation of every kind. There are generally high waters at some period during the spring months, or between the first of March and the month of June; this has never failed since my residence here. Some years there are two freshets. In 1834 and 1836 the second came in the last of May or first of June.

When I commenced practice here in 1830 or 1831, I found the country, with the exception of the town of *New Harmony, which has been for many years remarkable for the health of its citizens*, infested with fevers almost of every grade from the most simple intermittent to the most fatal remittent. The spring opened with intermittents of a mild form accompanied occasionally with remittents. As the season advanced and the weather became warm, the severity and obstinacy of the intermittents became proportionably increased, and remittents became more severe and numerous. Towards autumn and during the fall, bilious remittents were very prevalent and often attended with symptoms of very great severity, developing in their course all the characteristics of western bilious fever. During its progress, if the patient had been neglected, or the treatment not well directed,

the tongue became covered with a dry brown or black scurf, the skin dry and husky, with much disturbance of the sensorium sometimes, though not frequently. Some cases were of a lingering character, continuing for ten or twelve days, and then terminating favorably. The general character of the diseases, when suitable attention was paid, was to intermit from the fifth to the ninth day, and form a salutary crisis.

The constitutional type was the same during the three succeeding years, though there was less sickness in the last then in the two preceding, and that which occurred was of a much milder type. During the summer and autumn of 1834 very few families in this district of country escaped the visitation of fever, which generally assumed the most serious character, carrying off many of the most respected citizens. The weather of this year differed much from the preceding with respect to rain, dryness, heat, wind, &c., &c. The early part of spring was remarkably cool and pleasant, there were frequent rains of short continuance, and the country was more healthy than usual.

May—Very warm and dry—several cases of mild intermittent fever.

June—Ushered in with very warm and dry weather, vegetation abundant, the Wabash high, and in low places overflowing the banks, and inundating the low lands—after the 17th we had frequent and heavy rains—a few cases of cholera morbus occurred.

July—The sickly season, as it is familiarly called here, begins about this time and continues until the frosts in the fall. In this month there were very warm winds, generally from the south-west. Remote from the Wabash, on the adjacent high grounds, dysenteries and cholera morbus prevailed, but towards the latter part of July subsided; whilst in August intermittent and remittent fevers became general, and of a more severe grade.

September—The east-winds generally prevailed, with the usual temperature of August, until the latter part of the month, when it became much cooler, and the winds more

north—a high grade of inflammatory fever prevailed. The congestive form became more general as the weather grew colder.

October—Winds generally west; heat of the sun oppressive during the middle of the day, with cool nights, until after the middle of the month, when the temperature seldom exceeded 50° Fah. After this time fevers rapidly subsided and were superceeded, in my practice, by a disease commonly denominated milk-sickness or trembles, which was at that time generally confined to neighborhoods bordering on the river.

In the above very brief, but I believe generally correct statement of the weather of the summer and fall of 1834, it will be observed why diseases are more violent in some seasons, and in some situations than in others—that the winds were mostly from a southern direction, while the low-lands were overflowed in the month of June when vegetation had much advanced, and in July were left with a large amount of putrefactive matter on the surface, to be acted upon by the heat of the sun, and consequently propagating miasmata and disease. In such seasons, we not only invariably have more sickness, but there is an increased malignancy in the character of the diseases.

The fevers of our summer and autumnal months are those generally denominated simple, inflammatory and congestive. The simple form of fever comes on with listlessness and languor, which sometimes continued two or three days, when the patient was taken with a chill, or a sense of coldness over the body particularly down the back, which lasted one or two hours and was followed by a preternatural heat over the whole body; the face flushed, and the eyes suffused—the pulse at the same time hurried and quick—prostration of strength—pain in the head and back, with sometimes soreness in the muscles of the legs and arms. The stomach toward the latter part of the season was irritable, rejecting in many instances every thing that was swallowed—the bowels costive, and the tongue, after the exacerbation had continued a few hours,

put on a whitish or brown coat—the appetite for cold drinks came on sometimes with the chill, but more frequently after the reaction—the exacerbations continued from ten to twelve hours, when a gentle diaphoresis might be observed on the surface. If proper medical aid was interposed early, this form of the disease yielded kindly, but if neglected a few days, it would assume the characteristic symptoms of the inflammatory form. All the preceding symptoms, in an aggravated degree, were attendant on the inflammatory bilious fever. The tongue covered with a dark or brown colored coat, the eyes suffused and of a yellow cast, languid and dull; laborious respiration; delirium; corded quick pulse and sometimes very irregular; loss of appetite, nausea and vomiting; the stomach frequently throwing up a thick ropy fluid of a yellow or green color; the skin exceedingly hot and dry, and often of a yellow tinge; bowels costive and when evacuations were procured, large quantities of dark, offensive matter would come away; urine scanty and very high colored, resembling the ley of wood ashes. To the high excitement of this fever, local affections were frequently added. The brain, lungs, liver, spleen or bowels, was generally the seat of inflammation, attended with acute pains, and other well marked symptoms of inflammation in those parts. The brain was the part most frequently implicated, and from its relations and functions the most important. In addition to the symptoms just enumerated, we may add (in cases where the head was conspicuously affected) a deep and severe pulsating pain in the head, throbbing of the carotid and temporal arteries, an injected conjunctiva and pain in the bottom of the orbits, with great sensibility and intolerance of light. Obstinate watchfulness, intellectual confusion, delirium and coma now ensued, and as the disease advanced in an unobstructed course, the brain became oppressed and the exercise of all the functions suspended; the tongue became dry and black; a striking hebetude is discovered in all the senses; the eyes are now insensible or nearly so, with dilated pupils; the voice falters, the hands tremble; the patient moans; involuntary dis-

charges of dark fœtid matter occur from the bowels; stertoreous breathing and convulsions close the scene.

Very few cases of this form of bilious fever proved fatal, when medical aid was resorted to in time. On the success of remediate agents, the stomach would become settled and composed, the remissions of longer continuance, the pulse soft and less frequent, the skin soft and moist; the tongue moist and clean around the edges, the inflammatory pains and sensorial disturbance would disappear, and the countenance comparatively a smile of composure, would presage a speedy convalescence. The liver was the next organ most generally implicated, and in all cases connected with yellowness of the eyes and skin, inflammation of that organ evidently predominated; the patient was distressed with a fullness and pain in the right hypochondriac region and under the shoulder blade in the course of the phrenic nerve, with clay or light colored stools. The other abdominal viscera before mentioned, were all (among the multiplicity of the afflicted) more or less seriously inflamed. This was indicated by pains in the regions which the respective organs occupy. In the two forms of bilious fever which I have endeavored to describe, as they appeared in the Wabash valley in the sickly year of 1834, it will be remembered that there was a high grade of action, or in other words, they were invariably attended with increased action of the heart and arteries, while the congestive form, which prevailed after the cool mornings and evenings of September, presented a striking difference in degree of arterial action. It was ushered in, as the other forms, with a cold fit of longer continuence; a partial reaction would succeed after a time, indicated by an increased temperature of the head and trunk, whilst the extremities remained cold: skin soft and clammy; pulse low, small and very compressible—during the exacerbation it would be full and soft; the temperature considerably below the natural standard over the whole system, or otherwise the heat was partial and confined to the head and trunk; the tongue after a few days put on a dark thick coat, especially in those cases where there was some increase

of vascular action in the early stage; articulation indistinct and the countenance haggard; the stomach was sometimes irritable, the epigastric region sore, and extremely tender on pressure and inflated—bowels torpid and discharging dark and offensive matter, and in some instances involuntary discharges with delirium and stupor took place soon after the appearance of an attack. There was anxious respiration and low moaning, and the patient, when accosted, would complain of general soreness of the whole body, great prostration of strength; the eyes were dull and sunken and often glassy; and in all such cases as terminated unfavorably, involuntary stools with slight hemorrhages from the nostrils, fauces, gums, or bowels, announced the approach of death. I would here observe that the foregoing symptoms are those of the fevers which occurred in 1834, and are intended to apply to the well defined cases of the different forms here laid down, which are descriptive of our fevers in general up to the present period, with some modification in degree of violence, corresponding to the season.

Treatment.—As the treatment of the simple form so nearly resembles that of the inflammatory, I shall speak of them both under one head; and in the order in which they seem to be required, as nearly as the circumstances of the disease will permit, for indeed the remedies of the aggravated cases of the one and the slighter cases of the other, were the same, modified according to circumstances.

In a large majority of cases the lancet was strongly indicated and freely used early in the disease; blood was taken without regard to quantity and from a large orifice, until the pulse was reduced in force and frequency, and the pain in the head and difficult respiration relieved. Employed in this manner, the lancet will in many cases effect a speedy resolution of the paroxysm, and if it does not entirely prevent its recurance, it will certainly lesson its violence, reduce the temperature, alleviate the pain, and produce an increased susceptibility to the impressions of medicine. It should be repeated as often, and to as great an extent as the symptoms

may require; those who were bled in the beginning of the fever, bore a repetition of the operation, at an advanced period, much better than when the previous evacuations had been omitted.

Emetics were next premised, and twenty grains of ipecacuanha with one or two of tartrate of antimony was generally prefered, and given so as to produce full vomiting, assisted in its operation by copious draughts of warm water. It is of much importance in the administration of this remedy, that it be given early in the commencement of the chill, when the case will admit of it, or immediately after the bleeding, while the system feels the impression occasioned by the loss of blood, before the disease has had time to reorganise its broken forces. By these means the diseased action was very often broken up, and convalescence speedily established. But it more frequently happened, that the disease pursued its course, and the next or succeeding paroxysm, was attended with extreme nausea and vomiting, when much relief was obtained from the effervescing mixture, mint tea, &c., with mustard sinapisms to the epigastric region and extremities.

As soon as the stomach would permit it, a cathartic of calomel and rhubarb, or calomel rhubarb and aloes, was given in a full dose, and repeated in such manner as to keep up continued evacuations of highly offensive and irritating matter from the bowels. I found the above combination to unload the bowels efficiently and promptly, producing in due course bilious evacuations which was beneficial in relieving the fever, pain, oppression, thirst and restlessness, when the general secretions succeeded that of the liver, and the disease soon yielded. In the advanced stage I found small doses of calomel, given at intervals of four or five hours, and determined to the bowels by infusion of senna and salts or Seidlitz powders, useful, supporting the biliary secretion and preserving the bowels in a soluble condition. Cathartics had a powerful effect in removing the congestive and inflammatory states of the viscera, as well as in subduing fever generally.

On the first exacerbation of fever, antimonials, or calomel

in combination with ipecacuanha, was given every two, three, or four hours, according to circumstances, during the stage of excitement; constant nausea was maintained, until the violent symptoms moderated, when the medicines just mentioned were administered more sparingly. This course was pursued after the offensive contents of the bowls had been thoroughly discharged; it seldom failed to relieve the patient, and produce a general relaxation of the surface, with a soft moist skin. Blisters to the extremities, when much heat and dryness prevailed, proved very beneficial.

Diuretics were found of great importance in arresting the progress of disease. A close observer will invariably find that, soon after the urinary secretion is established, the liver and skin will both generally begin to yield their respective secretions, and that the disease will generally be unable to resist the efforts of these organs. To fill this indication nitrate of potass, spirits of nitre and digitalis were all occasionally used with good effect.

Epispastics were used for the double purpose of moderating febrile action, and to relieve local affections. In the one case they were applied to the wrists and ankles and down the spine, and in the other over the seat of pain.

Tonics.—As soon as the inflammatory stage had subsided, and a decided remission occurred, sulphate of quinine and other tonics were prescribed, with the happiest effect, until the restoration of health.

In the treatment of the congestive form of bilious fever, that prevailed in 1834, I was governed by two leading indications: 1st, the removal of the bilious symptoms present, with a view of relieving the congestion: 2d, the production of a reaction in the system, with the view of relieveing the congestion. To accomplish the first indication or to relieve the urgent bilious symptoms, active mercurial purgatives were prescribed, followed by castor oil, and enemata, which effectually evacuated the vitiated contents of the bowels; when the pulse, though weak at first, became stronger, and the prostrated energies of the system were thereby improved.

It was then necessary to continue the mercurials until the evacuations assumed a more natural appearance, and the urgent symptoms disappeared. For this purpose calomel was given in small doses; and where the patient was much prostrated, the addition of camphor was thought necessary. This combination was given every three or four hours, followed occasionally by mild purgatives, until the cure was effected. The small doses of calomel were prefered, in order to have the remedy act more immediately on the hepatic system, and correct more efficiently the borbid secretion of bile. To answer the second indication or to bring about reaction of the system, and relieve the congestion, in addition to the above course, an attempt was made to induce as much as possible an inflammatory disposition in the system. The warm bath assisted by powerful rubefacients such as tincture of capsicum sinapisms to the trunk and extremities, and where local congestion of any of the viscera existed along with the general disease, stimulating embrocations with friction were freely used, and lastly a sinapism applied over the part. This course seemed to obviate the necessity for internal stimulents, employed by some practitioners in congestive states of the system. They excited a warmth over the whole surface; the pulse became fuller, and more regular in its beats; and, aided by the repeated operation of purgatives, the delirium was removed, and the strength gradually regained. With regard to venesection, I would observe that I generally saw this form of fever in my country practice in the advanced stage, and so prostrated were the energies of the system, that it was entirely inadmissible. The remedy in particular oppressed states of the system may answer, when used with caution and discrimination; yet in the practice of 1834, I well recollect that the number of deaths was so large in proportion to the number bled, that it became proverbial among the people, that bleeding was death.

About the season of the year when congestive fever prevails, we have here a disease, itself congestive, commonly denominated *milk-sickness* or *trembles*, which in the fall of 1834

was, in this section, more extensive in its range, and more violent in its character. Whatever may be the cause of this distressing disease, I have been forcibly struck with its resemblance to many of our common autumnal diseases; and the more I see of it, the more firmly I incline to the opinion that it has, with them, a common cause, or is of miasmatic or atmospheric origin. The identity of this disease with the disorder in cattle called trembles I think probable, having witnessed horses, cattle, and dogs die with it, while attending on their owners with milk-sickness (as it is termed), though this does not prove, as is generally asserted, that it is produced by eating the milk, butter, or meat of cattle, apparently healthy, and which run at large in the woods. Are not animals subject to many of the maladies incident to the human family? Individuals have been afflicted with it, that are known not to have used either butter, milk, or beef. A highly respectable Medical friend of mine, who has had much experience with this disease, was some time since attending upon a family with milk-sickness, who had no cattle, and had not made use of any of the above articles, while a family living near, whose cattle had this disease, and who had been using both milk and butter freely, not being aware for some time of the presence of disease among their stock, remained in perfect health. It is said that cattle kept in cultivated pastures escape the disease; this I believe to be generally true, so far as the subject has come under my observation in Indiana. Those farmers who have good cultivated pastures, are in general able to take good care of their stock, and feed well; and such cattle, with few if any exceptions, will escape it running in the woods; while on the contrary, I believe it will be found that poor, half-starved cattle will take it whether in pasture or out of it, if exposed to the exciting cause. I know a few families who have been living for many years in the very centre of the infested district, who are particularly careful of themselves and attentive to their cattle, and who have never suffered in a single instance, either in their families or in their stock, though the latter have run at large

the whole time. That cattle in good condition are occasionally afflicted with this disease, is true; so are individuals in very comfortable circumstances occasionally afflicted with our fall fevers, but this does not prove that they are so liable as the poorer inhabitants of cold and uncomfortable dwellings. Thus, as I believe, it is not the confinement of the animal in good pasture or from the woods, that preserves its health, but the condition or nervous energy of the animal that resists the predominating cause.

This disease is ushered in by general prostration, particular after exercise, and a sensation of burning about the pyloric orifice of the stomach. After the lapse of two or three days, the debility and prostration increase, the burning sensation extends up the course of the esophagus, with nausea and incessant vomiting—there is obstinate constipation—the tongue is slightly coated but more generally preternaturally red; thirst intense, constantly craving cold water; pulse small and quick and sometimes hard and corded; with icy coldness of the extremities, and a countenance indicative of extreme suffering. The debility and prostration gradually increase to an alarming extent, most of the internal organs become involved, the secretions in general and particularly that of the liver are locked up, and all the morbid phenomena of the system are in full exercise. Towards the close of the disease, the pulse, that has been all along sinking, is now imperceptible, and there is hiccough, fainting, extreme coldness of the extremities, with delirium, coma, cold clammy sweats, frequent and involuntary discharges of black offensive stools, precisely similar to those evacuated in the last stage of typhoid fevers.

Prognosis.—A gradual cessation of the pain and burning sensation at the stomach, and of vomiting, with copious alvine discharges, a moist skin, with a return of the natural expression of the countenance, indicate a favorable termination of the disease. But, on the contrary, when the pain and burning of the stomach increase, when the vomiting continues almost incessantly, the bowels remaining confined, the pulse

becoming nearly imperceptible, and the countenance cadaverous, the worst consequences are to be apprehended.

Treatment.—About three months since, I was called to a Mr. H., who was laboring under the disease for the ninth time in the last twelve years; he had had the disease for three or four days, and was in the second stage. When roused up, he would answer to any question promptly, but would instantly relapse into a kind of lethargy. He had all the usual symptoms before described. By means of two or three doses of calomel, rhubarb and aloes, with purgative enemata, and blisters to the epigastric region and extremities, he gradually recovered. After the lapse of a few weeks, he went to work and induced fatigue, when all the symptoms in full force again appeared. I used calomel in combination with extract of butternut, ol. ricini and turpentine, soda powders and purgative enemata, when he again recovered.

About the same time, I saw two young women who had had the disease every year for several years in succession, with symptoms as above. I used calomel and extract of butternut, purgative enemata, blisters to the epigastric region, and extremities, &c., under which treatment they both recovered. One of them went to work, and thereby induced fatigue, returned home in the evening, complained very little, threw herself on the bed, and died, before her relatives were aware of her danger. From the above, it will be evident that the first stage of the disease requires very little treatment. The only thing necessary is to enjoin perfect rest, and administer some of the milder laxatives, such as super tartrate potass and jalap, ol. ricini or sulph. magnesia, so as to keep up a loose state of the bowels.

The second stage requires a much more energetic practice, and from the character of the symptoms we would be led at once to the use of depletory remedies. Venesection in the commencement of this stage, is naturally suggested, and I have employed it, in very many cases with the happiest effect, though the all important remedy in the treatment of this dis-

ease, evidently consists, as much experience has taught me, in purging in such manner as to bring away copious evacuations, which generally allays the gastric irritability, and restores the lost balance of the circulation. The greatest difficulty in obtaining this object, is occasioned by the constant vomiting which is generally relieved after the action of a blister applied over the region of the stomach.

New Harmony, 1843.

Selections from American and Foreign Journals.

Clinical and Pathological Report on the Pneumonia of Children as it prevails among the Poor in London. By Charles West, M.D., Physician to the Royal Infirmary for Children, and to the Finsbury Dispensary.*

PART FIRST.

If any person were to estimate the importance of pneumonia in early life from the space allotted to it in English works on the diseases of children, he would doubtles conclude that a malady concerning which the most experienced thought it necessary to say so little can neither be grave in its character nor frequent in its occurrence. Our tables of mortality, however, show that pneumonia is the cause of a larger number of deaths in childhood than any other diseases, with the exception of the exanthemata. It appears from the Appendix to the Third Report of the Registrar-General, that during the year ending May 22, 1841, 22,429 persons died within the Metropolitan districts under the age of fifteen. Of these 3058, or 13.6 per cent. died of pneumonia; 2963, or 13.0 per cent. of convulsions; and 1215 or 5.4 per cent. of hydrocephalus. A very similar result is obtained by examining the returns from Manchester, Liverpool and Birmingham, which are contained in the same report. In the year 1839, 11,164 deaths took place in these three towns, of persons under the age of fifteen. Of these persons 1348 or 12 per cent. died of pneumonia, 1615 or 14.4 per cent. of convulsions, and 493 or 4.4 per cent. of hydrocephalus. The slight

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* We give insertion, in our present number, to a longer paper than has ever before found its way into this department of the Journal. We do so because that we look upon the production as one of great merit; and we feel assured that those of our readers who shall give it an attentive perusal, will not require of us any apology for republishing it at length.—Edts.

in this case of deaths from convulsions cannot be regarded as invalidating the statement made as to the extreme frequency of pneumonia; but depends doubtless on the difficulty of obtaining an accurate return of the causes of death in places where there is a large proportion of migratory population, such as the Irish in Liverpool. That this is the true explanation of the apparent excess of deaths from convulsions appears further on observing that in Birmingham, where no such disturbing cause exists, and where the registers may therefore be presumed to be kept with greater accuracy, the per centage of deaths under fifteen years of age from convulsions is only 7.0, and from hydrocephalus 4.0, but from pneumonia 16.0 per cent. Even though the above returns were not completely exact, they yet must be regarded as affording a close approximation to the truth, and as establishing the serious nature as well as the frequent occurrence of inflammation of the lungs in childhood. A very large number of cases of this disease came under my notice at the Finsbury Dispensary, in the years 1841 and 1842, and at the Children's Infirmary in 1839–42, and the results of what I believe that I then learned are embodied in the following observations. For the opportunity of investigating both this and many other diseases of infancy during many years previous to my appointment to the office of physician to the Children's Infirmary, I am indebted to the great kindness of my friend and predecessor Dr. Willis; and gladly acknowledge the extent of an obligation which I can never hope to repay.

It will probably occur to some on reading the following remarks, that a great discrepancy exists between many of the statements and opinions they contain, and those of French writers of deserved reputation. To account for this, however, it will not be necessary to impugn the accuracy of the observations of either party; since two causes may be assigned fully adequate for its explanation. These are the very tender age of many of the infants who came under the notice of our continental neighbours; and the extremely unfavorable hygienic conditions in which all children are placed, whether at the *Hospice des Enfans Trouvés*, or at the *Hôpital des Enfans Malades*. The investigatiens of Billard and Valleix were carried on at the Foundling Hospital, and consequently for the most part on children only a few days old; while no child labouring under pneumonia who came under my notice was less than a month old. It should too be borne in mind that the morbid condition of the lungs of new-born children, which depends on their imperfect expansion at birth,

(first described under the name of atelectasis pulmonum by Dr. E. Jörg,*) was unknown either to Billard or Valleix, and that even now the French are by no means familiar with it.† But the condition of those children who are admitted into Foundling Hospitals is precisely such as most frequently gives rise to this affection; and, as Hasse‡ has shown in his elaborate work on Morbid Anatomy, the symptoms noticed during life, and the appearances found after death in many of the cases described as pneumonia by French writers, are exactly such as characterize atelectasis pulmonum.

Ample evidence exists of the extremely unfavorable conditions under which children are placed in the Children's or Foundling Hospital at Paris. One result of this circumstance is shown in the endemic prevalence of diseases in those institutions such as do not exist elsewhere; another in the frequent complication of almost all diseases with other secondary affections. Of these secondary affections gastro-enteritis and pneumonia are the most frequent. So often indeed is a condition of the lungs resembling that produced by inflammation observed among the inmates of the Foundling Hospital, that some have asserted pneumonia to be an invariable complication of the diseases of new-born infants.§ The researches too of M. Becquerel,‖ which were carried on at the *Hôpital des Enfans Malades*, where none of the patients are under two years of age, discovered traces of inflammation of the lungs in the bodies of 49 out of 133 children who had died of various affections. From these facts and some others of a like nature, M. Becquerel concludes that pneumonia supervenes rarely in perfectly healthy children; that it occurs most frequently in those who are exhausted by previous disease, or placed in unfavorable hygienic conditions; and that it comes on in the course of acute diseases of specific adynamic character. To this opinion French writers almost universally subscribe, and some have even denied the existence of idiopathic pneumonia in children between two and five years of

* In his Dissertatio de pulmonum vitio organico—Lips. 1832; and afterwards more fully in his work, Die Fötuslunge im gebornen Kinde.—Grimma, 1835.

† In proof of this, see a paper by M. A. Lhommeau, in Gaz. des Hôpitaux, Sept. 20, 1842, "Sur un état particulier du poumon chez un nouveau né," wherein he describes minutely a case evidently of Atelectasis; and notices its difference from pneumonic lung, but is quite at a loss as to its real nature.

‡ Specielle pathologische Anatomie. Band i.—Leipsig, 1841, s. 324-35.

§ See a paper by M. Savatier, in La Clinique for 1834, republished in Froriep's Notizen, Bd. xix No. xxi., also Valleix Clinique des Malad. des Enfans. Paris, 1838. Chap. ii.

‖ Archives Générales de Médecine, 1839, p. 437.

age.* MM. Rilliet and Barthez† likewise, though they do not agree to this proposition as absolutely true, yet admit that it is subject to but very few exceptions, since they met with only 3 instances out of 40 cases of pneumonia which occurred in children between two and five years of age, where the patients were previously in good health. Even between the ages of six and fifteen, idiopathic pneumonia according to their observations is rare, 6 only out of 20 children having been free from other disease at the time of its invasion.‡

It may suffice to have mentioned these facts without enlarging on the different features which disease must present among children who for the most part were not suffering from extreme poverty, and who were tended by their parents at their own homes, from those which it wears among the wretched inmates of the Foundling and Children's Hospital at Paris.

Morbid Anatomy. I will now proceed to detail the results of my own observations; prefacing them with a Tabular View of 37 *post-mortem* examinations of children who died of pneumonia. The appearances are arranged under the heads of Lobar, Lobular, or Vesicular Pneumonia, according as one or the other rorm of inflammation predominated.

[The tables here alluded to occupy nine pages, containing the details of the *post-mortem* examinations of the bodies of 37 children. From them we gather that 22 cases presented instances of *lobar* pneumonia; 9 males and 13 females. Two were of less than one year old; 9 between the ages of 1 and 2 years; 2 between 2 and 3; 3 between 3 and 4; 3 between 4 and 5; 1 between 5 and 6; 1 of 9; and one of 11. Thirteen of these cases (*lobar* pneumonia) were idopathic. The remaining 9 followed various diseases; one followed coryza in a phthisical child; one followed symptoms of gastro-enteritis; one supervened on phthisis; one supervened on measles complicated with diphtheritis; one complicated measles which

* Gerhard, in American Journal of Medical Sciences, August and November, 1834; and Rufz, Journal des Connaissances Médico-chirurgicales, 1835, p. 101.

† Maladies des Enfans, Aff. de Poitrine.—Paris. 1838, p. 76.

‡ Since this was written, MM. Rilliet and Barthez have published their Traite Clinique et Pratique des Maladies des Enfans, and the statements contained in it show the frequency of idiopathic pneumonia to be greater than they had formerly supposed. "Of 245 children attacked with pneumonia, 58 were previously in good health, 24 of these 58 children were under five years old, 34 had exceeded that age."

supervened on hooping-cough; one supervened on acute hydrocephalus in a phthisical child; two accompanied dropsy after scarlatina; and one supervened in course of acute rheumatism.

Eleven out of the 37 presented instances of *lobular* pneumonia; 5 males, and 6 females. Out of these, 5 were idopathic; 5 followed hooping-cough; and 1 accompanied measles which followed croup.

Four out of the 37 presented instances of *vesicular* pneumonia; 2 males, and 2 females. Three of these were idiopathic, and the other followed hooping-cough.

As the remaining details of the tables occupy so much space, and as suitable inferences are drawn from them by our author, we have deemed it best to omit them.—Edts.]

No one can be more sensible than I am of the many deficiencies in the above tables, and I can only plead in extenuation that almost all the *post-mortem* examinations were made without assistance, in the houses of the poor, whose prejudices and suspicions often rendered it impossibible to devote to such investigations more than a small portion of that time which they require. The facts, however, though incomplete, may be relied on, since in no case are they stated from recollection, but always from notes taken on the spot.

The first conclusion which may fairly be deduced from these data is, that the lobar pneumonia attacks children much more frequently, in comparison with the other forms of the diseases, than has been imagined by French writers; and that differences of age do not occasion such a liability to one form of inflammation of the lungs, and such an immunity from the other form as would appear from their statements. Of twenty-two *post-mortem* examinations of cases of lobar pneumonia, nineteen are of children under five years of age, and ten of children under two; while two of the *post-mortem* examinations of cases of lobular pneumonia are of children between the ages of six and seven.

A more striking difference between the two classes of cases appears in the fact that five of the cases of lobular pneumonia supervened on hooping-cough, and that in another instance the disease complicated an attack of measles which succeeded to croup. In the remaining five cases indeed, it is said to have been idiopathic, but even here the bronchi were found

either greatly injected or containing a very abundant secretion in their cavities. These circumstances give considerable probability to the supposition of some Freneh writers, that lobular pneumonia occurs as the result of the extension of inflammation of the bronchi to the substance of the lung,—a theory which would explain many of the peculiarities that distinguish it from lobar pneumonia. Its greater prevalence during infancy and early childhood than subsequently, might perhaps be accounted for in accordance with this hypothesis by the extreme frequency of catarrh among young children, and by the fact that in the great majority of cases hooping-cough and measles occur before the commencement of the second dedtition.

The appearances produced by lobar pneumonia in the child do not require particular notice, since they differ in no important respect from those observed in the adult.

I once met with a condition of the lung. (which I believe to be very rare), closely resembling what some have described as chronic pneumonia. The subject of this observation had suffered from cough and difficult breathing for a month before she came under my care, and died ten days afterwards. On examining the body a small quantity of clear serum was found in the cavity of the left pleura, and a few easily broken adhesions existed between the left lung and the ribs. The right pleura contained from ℥ij. to ℥iij. of a turbid sero-purulent fluid, and the lung was invested with a thin layer of yellow lymph, by which it was in many parts connected with the ribs. The upper two thirds of the upper lobe of the left lung were slightly congested, the lower third was in a state of gray hepatization, with purulent depôts in many of the pulmonary vesicles, constituting the state described as vesicular pneumonia or vesicular bronchitis by different authors. The left lower lobe was in the first stage of pneumonia. The different lobes of the right lung were adherent to each other. The lower lobe was in the first, the middle in the third stage of pneumonia. The upper lobe was perfectly solid, of a light gray colour, resembling very much a piece of soap, smooth when cut, not soft, but easily broken. In its substance were patches of a red colour, like wine lees; soft and pultaceous to the touch, and breaking down into a kind of quagmire, in which no trace of pulmonary tissue was discernible. The lower edge of the lobe had generally this red appearance and pultaceous consistence. but little patches of it, some not bigger than a pea, were diffused through its substance in various

parts. Neither the lungs nor any other organ in the body showed any trace of tubercle.

The condition to which the appearances in this case bear the closest resemblance is not that gray form of chronic pneumonia described by Andral, in which the lung retains its granular structure; but a state which has been described by Hasse in his Morbid Anatomy. That writer says,* that sometimes he has found "in children who have had symptoms of inflammation of the lungs, a light gray, nearly white, or yellow, induration of a whole lobe or of several lobules, which seems to affect the upper lobes more frequently that the lower." The appearance is quite different from that sometimes met with in children when a whole lobe is converted by tubercular deposit into a solid, cheesy, substance; and I am the less disposed to consider the change as any variety of tubercular degeneration, owing to the absence of tubercle from all other parts of the body.

There is a condition of the lungs, described under the name of *carnification* by MM. Rillet and Berthez, and regarded by them as of frequent occurrence. I have also met with it, though neither so frequently, nor involving so large an extent of pulmonary tissue as in the cases described by those gentlemen. I have not, however, included it in the table of *Post-Mortem* Appearances, since some of the examinations there recorded, were made before I had met with their work, and consequently before my attention had been especially directed to it. They describe portions of lung which have undergone this change as being depressed below the level of the surrounding tissue, of a violet colour, presenting when cut a smooth, red surface, yielding a bloody serum when squeezed, in which no air bubbles are contained, and in short resembling a portion of muscle. The comparison they make of lung in this condition, with a portion of fœtal lung is very exact; its appearance indeed is precisely such as is observed in infants who have died from Atelectasis Pulmonum. The advanced age of many of the patients in whom it was noticed by MM. Rilliet and Barthez, as well as by myself, forbids us to attribute it to that cause. They suggest that it may be a form of chronic pneumonia, but this supposition can hardly be considered tenable, if we bear in mind that in many of the instances in which it was observed the inflammatory process ran its course with great rapidity.

* Op. cit. p. 292.

Neither does it seem attributable to the pressure of fluid effused into the pleura, since in one only of MM. Rilliet and Barthez's eleven cases in which the lung was carnified did there exist any effusion into the sac of the pleura;* a statement which my own experience fully confirms. This condition usually presented itself to me affecting a cluster of two or three lobules in the substance of a lung, or more frequently fringing the lower edge of a lobe; the lower edge of the upper er middle lobe being its seat more frequently than the lower edge of the lower lobe. I would not have alluded to a condition on the real nature of which I can throw so little light, but from the hope that the attention of others more favourably circumstanced for the pursuit of morbid anatomy may thereby be directed to the subject.

Closely allied to lobar pneumonia is that œdematous condition of the lung, not unfrequently met with in children dying with chest affections in the course of dropsy after scarlet fever. In most cases where this state is found after death, the dyspnœa has either come on, or, at least, has been aggravated very suddenly, being attended with great distress, and exceedingly tumultuous action of the heart, and proving very rapidly fatal. A considerable quantity of serous fluid is generally found in each pleura, both lungs are universally congested, and gorged with bloody, frothy fluid, which exudes abundantly on cutting into them. This is evidently not the result of mere position, since the upper are quite as much affected as the lower lobes. The congestion appears to exist in the same degree everywhere, and though the texture of the lung may be less firm than natural, yet I have never found any portion in a state of actual hepatization.

Lobular Pneumonia. It has not been attempted in the table of morbid appearances to make that distinction between cases of simple and of generalized Lobular Pneumonia which has been drawn by MM. Rilliet and Barthez. It will be seen by a reference to the table, that in almost every instance, even if the inflamed lobules in one lung were distinct, the pneumonia had become generalixed in the other. Perhaps, too, MM. Rilliet and Barthex would have found this to be the case more frequently, if the children who came under their notice had been placed in conditions more favorable to their bearing

*These gentlemen base their observations in their recent work on forty-two instances of carnification, and they expresely state that their remarks do not refer to that form of the lesion which is the mechanical result of effusion into the pleura. (Op. cit. t. i. p. 74.)

up under the disease, and if time had thus been given for the lobular pneumonia to become generalized.

First and second stages. A lung affected with Lobular Pneumonia presents a mottled appearance, portions of a deep red colour being interspersed in the midst of others having a natural aspect. This condition closely resembles that of a lung which is the subject of Atelectasis, but there is one point of difference by which the two states may very generally be distinguished from each other. In each, the dark portions of the lung are depressed beneath the general level; but in Atelectasis this depression is real and owing to the dark portions never having been expanded by the entrance of air; in Lobular Pneumonia it is apparent only, being produced by the emphysematous distention of the surrounding tissue. A section of the lung presents an appearance similar to that of its surface, and shows even more clearly that the red portions are inflamed lobules, and the pale lobules those which have not been the seat of inflammatory action. It happens indeed comparatively seldom, that single lobules are found affected, the inflamed patches usually comprising four or five, which together form a mass of the size of a nut or an almond. These portions of inflamed tissue give to the lung an unequally hard feel, such as is described, though apparently without its cause being understood, in Dr. Watt's valuable monograph.* It is there said in the account of the *post-mortem* appearances found in one case, that "The lungs felt knotty, and uncommonly firm in some places; but on cutting into them no tubercles, such as are met with in phthisis, could be detected." If the patient lives for some time, the intervening substance usually becomes affected and the lobular is thus converted into lobar pneumonia. This change does not appear to take place by the gradual extension of disease from each inflamed lobule as from so many distinct centres, in which case one would expect to see a gradual shading off of the inflammation from the dark, highly-inflamed centre, to the paler, less inflamed periphery; but sooner or later the whole intervening pulmonary substance seems at once to become the seat of inflammatory action which runs its course as in ordinary lobar pneumonia. It happens, indeed, sometimes in cases where an entire lobe is affected with lobar pneumonia in the first stage, that some dark-red and perfectly solid patches are found which might

* Treatise on Chincough. Glasgow, 1813, 8vo., p. 131.

seem to indicate that the disease began a lobular pneumonia. But even here, there is none of that gradual deepening in intensity of the inflammatory appearances as we approach each solid lobule which must needs exist if lobular pneumonia became general by involving the different lobules in succession. In a few cases in which pneumonia, originally lobular, was becoming general when death took place, I have found the pulmonary tissue intervening between the inflamed lobules "drier than usual, not at all engorged, as in Laennec's first stage, and of a bright-red colour from intense arterial injection;" in that condition in short, regarded by Dr. Stokes* as constituting really the first stage of pneumonia.

Third stage. In the greater number of cases of lobular pneumonia death occurs before the inflamed lobules have passed into the stage of gray hepatization, or the lobular pneumonia becomes general, and the third stage consequently presents no peculiarity. To this, however, there are occasional exceptions, the inflamed lobules either becoming infiltrated with pus, and then presenting on a small scale the same appearance as is seen on a large scale in ordinary gray hepatization; or each lobule becomes the seat of a small, distinct abscess; with numbers of which the lung seems riddled. These pulmonary abscesses were met with twice; both times in cases where pneumonia had supervened on hooping-cough. In one instance, they were found in both lungs and coexisted with extensive tubercular deposit in those organs. It might indeed be objected to this case, that the supposed vomicæ were in reality softened tubercles, though it is my belief that no such error was committed, and that none of the tubercles had passed the crude stage. Be that, however, as it may, no such objection exists in No. 8, in which the vomicæ existed only in the lower lobes of each lung, while no tubercle was found in any organ of the body. These collections of matter which vary in size from that of a millet-seed to that of a pea, are found in the centre of the lung as well as near its surface. They sometimes communicate distinctly with a bronchial tube, but at other times no such communication can be clearly traced. They are irregularly circular, not lined by any smooth membrane, nor surrounded by a barrier of indurated lung such as is often seen around small collections of softened tubercle. They may be further distinguished from tubercle by the circumstance that they usually occupy the lower lobes

* Diseases of the Chest. Dublin 1837, p. 311.

only, and that they are found in cases where all other organs are free from tubercle. It is decidedly a rare condition. MM. Rilliet and Barthez met with it only twice in forty-three *post-mortem* examinations;* and I but twice in thirty-seven.

Vesicular Pneumonia. That state of the lungs known by the name of Vesicular Pneumonia or Vesicular Bronchitis first excited general attention from a description of it contained in a dissertation by M. Lanoix. The appearance, however, is described by Dr. Watt† who had observed it and referred it to its true cause. A lung, or a portion of lung which is the seat of this affection, presents an uneven surface; the inequality being produced by the presence of a number of small, circular, yellowish prominences, which bear a considerable resemblance to crude tubercles. They may, however, readily be distinguished from tubercle, for not only do they almost always occupy the lower margins of the different lobes, but on puncturing any one of them with the point of a scalpel, a drop of pus will exude, showing them to be small collections of matter. The cavity in which these purulent collections exist appears to be that of the extreme pulmonary vesicles, a fact which may be ascertained by tracing a minute bronchus to its termination in one of these little sacs.

This condition is a very frequent complication both of lobar and lobular pneumonia, when it fringes the inflamed lobes, especially at their lower margins. Occasionally, too, it involves the whole of the middle lobe of the right lung, but it will be seen by a reference to the table that it seldom constitutes the chief lesion. In each of the four cases also in which vesicular pneumonia was the most prominent morbid appearance, the lungs presented signs of the other forms of pneumonia in a more or less advanced stage; the only exception to this rule being in No. 1, in which puriform secretion was contained in the pulmonary vesicles at the upper part of the upper lobe of the right lung uncombined in that situation with any of the other forms of pneumonia.

Complications. *Affections of the bronchi.* The state of the bronchi, and the nature of their contents were noted, though not with all the minuteness desirable in twenty-five cases. The following general results will be found, however, very nearly accurate. Some degree of increased redness of the air-tubes exists in most cases of pneumonia: in lobar

* In their recent work, they give the proportions as 26 in 314 *post-mortem* examinations of lobular pneumonia, p. 67.

† Op. cit. p. 139.

pneumonia, however, this redness is rarely intense, and is very often met with only in those situations where the substance of the lung itself is inflamed. In lobular pneumonia, intense congestion of the air-tubes is much more frequently observed, and is especially remarkable in the lobular pneumonia, which supervenes on pertussis. The bronchi are oftener empty in lobar than in lobular pneumonia, though in the former it is common to find puriform secretion in the bronchi near to any part which has passed into the third stage of pneumonia. Sometimes, too, abundant mucous fluid is found in the air-tubes while their lining membrane is quite pale; the accumulation of fluid in these instances being attributable to the inability of the patient to expectorate. In lobular pneumonia secretion of some kind or other is usually contained in the bronchi. It is oftener mucous than puriform, sometimes scanty, occasionally very abundant, and in this case it is not unfrequently very tenacious, and of a consistence approaching to that of false membrane. In these instances the secretion is usually more membraniform in the larger bronchi, more fluid in those of smaller caliber, which are sometimes rendered impervious to air by its quantity. I have found this secretion nearly approaching the membranous form only in two cases, in both of which it was associated with lobular pneumonia. Many points connected with this affection are undetermined; and some French writers* lean to the opinion of its being an essential disease, a true croup of the bronchi, and regard the pneumonia with which it is associated as a frequent but not necessary complication. I do not feel myself competent to offer an opinion on the subject, but will merely observe, that in neither of the two cases above alluded to were the symptoms observed during life different from those of ordinary pneumonia.

Dilatation of the bronchi was observed in eleven instances, but it was possibly overlooked in some cases where it did not exist in a very marked degree. This dilatation was never irregular, as it is occasionally in the adult, when it gives rise to an appearance which has been likened by Laennec to that of some marine fuci. It always presented the tubular form: was limited, when slight, to the smaller bronchi, but when considerable it likewise involved those of larger size. It

* See the cases and remarks of Jurine in Royer Collard's Rapport sur le Croup- 2ieme ed.—Paris, 1836, p. 34; and p. 222, No. viii. of the Appendix. Also M. Fauvel's Reecherches sur la Bronchite Capillaire, &c.—Paris, 1840, 4to.

will be seen by reference to the tables, that it was in cases where pneumonia had supervened on hooping-cough, that this dilatation existed in the most marked degree. The same tables also show that the measure of dilatation of the air-tubes bore no proportion to the amount of fluid they contained; a fact which may further prove that some theory other than that of their mechanical distention must be adopted in order to explain this occurrence. The change effected by the inflammatory process in the vital contracility of the tube is probably, as Dr. Stokes suggests, the chief cause of this condition, to which in cases of hooping-cough is superadded the influence of the violent inspirations which occur during the paroxysms of the cough.

Emphysema. The extreme frequency of emphysema as a complication of infantile pneumonia renders some notice of it necessary. It was found occupying the upper part of each lung, and frequently fringing the lower edge of each upper lobe. It was usually most considerable in cases where severe bronchial symptoms had existed, but was also very extensive in some cases which had never been marked by violent cough, but in which the inflammation involved a very considerable extent of lung, and ran a very rapid course. Interlobular emphysema was observed in four cases, sometimes simply dissecting the different lobules from each other, at other times giving rise to a number of vesicles containing air which covered the surface of the upper lobe of each lung.

Pleuritis. In 12 of the 37 cases no traces of inflammation of the pleuræ were found; in 5 there ixisted old adhesions more or less extensive, and in 20 there were the marks of recent inflammation. In 12 of the 20 cases both pleuræ were affected; in 6 adhesions existed only on the right, and in 2 only on the left side. One of the cases of double pleurisy might be characterized as slight; in 5 others the disease, though slight on one side, was extensive on the other, and in the remaining 6 extensive pleurisy existed on both sides. In 17 cases adhesions between the costal and pulmonary pleura and the presence of more or less lymph on the surface of the lung were the only signs of pleurisy; but in 8 cases there was also effusion of a notable quantity of fluid. In 3 instances this effusion was serous; in the remaining 5 it consisted of a turbid, sero-purulent or purulent fluid.

The above-mentioned results which agree very closely with those obtained by MM. Rilliet and Barthez show how little foundation exists for the statement which has been made, that

"there does not appear to be much tendency to pleuritis in the young subject."* This error has most likely arisen from Dr. Maunsell applying to children of all ages, that which is true only of those who are very young. It appears probable indeed, from the researches of M. Ch. Baron,† that the liability to pleurisy is much greater among children above 2 years of age, than among those who are younger; since "of 3392 autopsies of children from 1 to 2 years old, pleurisy was found only in 205, and in 79 the pleura was otherwise unhealthy from some non-inflammatory cause; or, in other words, inflammation of the pleura was found only in 6 per cent., while in 181 autopsies of children from 2 to 15 years old, the pleura of 158, or 87 per cent. presented signs of inflammation."

Pericarditis. Of the three instances in which pericarditis coexisted with pneumonia, one was a case of rheumatic pericarditis; in the other two the pericardium was probably affected by the extension of the inflammation to it from the pleura. M. Ch. Baron‡ mentions two instances in which he believes that this occurred, and two years ago a little girl was under my care in whom signs of pneumonia had existed for some days, and a pleural friction sound had been heard for a short time, but had again disappeared when a to-and-fro sound became distinctly audible, accompanying the heart's action, and continued to be heard until the patient died. Unfortunately a *post-mortem* examination could not be obtained.

Tubercle. Tubercles were found in 10 cases either in the lungs or the bronchial glands, or in both. In 5 they coexisted in the two situations, in 1 they were found only in the lungs; in 4 only in the bronchial glands, and in 1 of these 4 a single gland was affected, and that had undergone the cretaceous change. Comparatively rare, however, as it is to meet with tubercle in cases of acute inflammation of the lungs, there is a kind of bastard pneumonia which is by no means unusual in infants whose lungs have undergone very extensive tubercular degeneration, such as is seldom met with after the first two years of life. It comes on insidiously in infants at the breast, or in children in whom the process of dentition is not completed; its symptoms, consisting in some exacerbation of the previously existing fever and increase of the cough and dyspnœa, attract but little attention, and serious alarm is not

* Maunsell and Evanson on the Diseases of Children 2d edition, p. 309.
† De la Pleurésie dans l'Enfance. Paris, 1841, 4to, p. 52. Note 3.
‡ Ib. p. 49.

excited until it is seen how little they are amenable to any treatment. Its course is generally slow, occupying a fortnight or three weeks, but instances do occur in which the fatal termination takes place much more speedily. A lung which has been the subject of this morbid process presents a singular appearance; parts of it being of a solid texture, and yellowish white colour from tubercular deposits, interspersed with patches of a deep red hue, which are the lobules that were not involved in the tubercular degeneration, but which have become the seat of inflammation.

PART SECOND.

Causes of Pneumonia.—I have now noticed all the chief points in the morbid anatomy of pneumonia which my own observation could serve to elucidate, and pass next to the examination of those circumstances which favour the development of the disease.

Influence of season. The season of the year has always been regarded as exercising considerable influence on the development of pneumonia, which has been generally supposed to be most frequent in the later winter and early spring months. The proportion borne by cases of pneumonia to all the cases, 2450 in number, that came under my notice at the Infirmary for Children, in 1841 and 1842, toking the mean of the two years, is shown to have been, during each three months, as follows:

In 1st three months	5.1	per cent.
2d „	2.5	„
3d „	3.8	„
4th „	5.8	„

Although this table does not quite accord with the generally received opinion as to the season when pneumonia is most prevalent, yet it tallies exactly with the results presented in the Third Report of the Registrar-general. It appears from that document, that the greatest mortality from pneumonia among persons under the age of fifteen years, takes, place in the month of December; and on a comparison of the different quarters of the year, it will be seen that the deaths from pneumonia are to the deaths from all causes, of persons under fifteen, in the following proportions:

In 1st three months	15.3	per cent.
2d „	11.4	„
3d „	8.9	„
4th „	18.7	„

Age. The age of the subject appears to exercise a very considerable influence in predisposing to pneumonia. During the years 1841 and 1842, 118 cases of idiopathic pneumonia came under my notice. The following table represents the ages at which these cases occurred, and the proportion per cent. they bore to the total number of cases of all diseases at corresponding ages.

From this table it appears that during the first five years of life, the cases of pneumonia bore the proportion of 10.3 per cent. to the total cases, while during the succeeding five years they were in the proportion of only 1.3 per cent. of the total cases. It will further be remarked, that during the first two years of life the proportion is as high as 17.5 per cent., and that the period when pneumonia is most prevalent coincides exactly with that during which the process of dentition is going on most actively; namely, from the sixth to the eighteenth month.

Age.	Male.	Female.	Total.	Proportion to all Cases
Under one month	0	0	0	.0 per cent.
Between 1 and 2 months ...	1	0	1	2.7 ,,
2 3 ...	3	0	3	6.5 ,,
3 6 ...	3	1	4	3.1 ,,
6 12 ...	19	6	25	8.7 ,,
12 18 ...	9	17	26	8.6 ,,
18 2 yrs. ...	5	6	11	5.5 ,,
2 yrs. 3 ...	11	10	21	7.8 ,,
3 4 ...	5	7	12	4.7 ,,
4 5 ...	3	4	7	3.9 ,,
5 6 ...	3	1	4	2.5 ,,
6 7 ...	1	0	1	.8 ,,
7 8 ...	1	1	2	1.9 ,,
8 9 ...	0	0	0	.0 ,,
9 10 ...	0	1	1	1.6 ,,
	65	53	118	

A substantiation of the above statement is furnished by the Third Report of the Registrar-general. It appears from tables which that report contains, that of 1553 deaths from pneumonia which occurred in Liverpool, Birmingham, and Manchester, 1348, or 86.7 per cent. were of persons under fifteen. Of these 1348,—1093, or 81 per cent. were of children under the age of two; and 1231, or 91.3 per cent. of children under three years old.

The influence of age on the production of secondary pneumonia is a point on which I have not such facts as could be

represented in the numerical form, but my decided impression is, that it is nearly the same in secondary as in idiopathic pneumonia, and the observations of MM. Rilliet and Barthez are favourable to this opinion.

Sex. Of the 118 cases which form the subject of the foregoing table. 65 occurred among boys, 53 among girls; and the bills of mortality for Manchester, Liverpool, and Birmingham show a similar excess of males among the deaths from pneumonia under puberty. This excess is somewhat greater than the actual excess of male births suffices to explain, although, if we calculate 105 male to 100 female births, it must be confessed that the influence of sex is at any rate very small.

Previous health. French practitioners have insisted so strongly on the importance of previous health as predisposing to pneumonia, that the subject must not here be passed over without notice. In 33 cases the previous health of the patients was ascertained, and found in 25 instances to have been good, in 7 delicate, and only in 1 decidedly bad. The conclusion, therefore, that a previously indifferent state of health predisposes to pneumonia, cannot be adopted with reference to children attacked by the idiopathic form of the disease in this country.

Disease. I regret that I have not data sufficient to enable me to state with perfect accuracy the proportion of cases of different diseases in the course of which pneumonia supervenes as a secondary affection. It is my belief, however, that (not reckoning catarrh, the influence of which will be presently considered), the chief diseases in the course of which inflammation of the lungs occurs may be ranged in the following order: Measles, Hooping-cough, Diarrhœa, and Remittent Fever. I can confirm the statement which has been made by others, as to the rarity of pneumonia in the course of scarlet fever, though the disease is by no means unusual in the course of the subsequent dropsy. In the few instances of small-pox which have come under my care, I have, in common with others, found inflammation of the lungs to be a most frequent and most fatal complication.

Catarrh. The authors of the most popular English work on the Diseases of Children say, that they "doubt much if pneumonia ever occurs in young children as a primary idiopathic affection;"* and express their opinion that it always comes on as secondary affection in the course of bronchitis. This assertion, coming with the weight which it necessarily

* Maunsell and Evanson, op. cit., p. 308.

receives from the deserved reputation of its authors, must, if erroneous, lead the practitioner into serious mistakes. That it is erroneous, I feel fully persuaded. In 50 cases of idiopathic pneumonia I have carefully noted the mode of attack, and find that in only 15 was it preceded by catarrhal symptoms. This fact is shown in the following table, as also is the other fact that the frequency of catarrh, as a prelude to pneumonia, is greatest while dentition is going on; that is to say, during the first two years of life.

In Children of the following Ages.	Pneumonia was		Total.
	preceded by Catarrh.	not preceded by Catarrh.	
Under 1 year,	5	5	10
2	6	7	13
3	2	7	9
4	1	6	7
5	1	5	6
6	0	3	3
Above 6	0	2	2
	15	35	50

Previous attacks. There are some diseases which, after having occurred once, confer on persons an immunity from subsequent attacks. This, however, is far from being the case with pneumonia, for of 78 children who came under my care for inflammation of the lungs, 31 were stated to have had previous attacks of the disease; 21 once, 4 twice, 2 four times, and 4 were said to have had it several times, though the exact number of seizures were not mentioned. Of these 31, 10 were under two years of age, 10 between two and three, and the remaining 11 between three and six. Except in a few instances, these statements are necessarily founded on the reports of the mothers of the children, or of other non-professional persons, and are therefore open to error; but at any rate they approximate to the truth, and may the more readily be trusted from their coincidence with the facts published by M. Grasolle, in his work on Pneumonia.

From the detail of the *post-mortem* appearances produced by pneumonia, and the investigation of the causes which give rise to its occurrence, we pass next to the examination of the symptoms by which it is characterised.

Symptoms of Pneumonia. Idiopathic pneumonia presents some differences in its course, according as it is or is not ushered in by catarrhal symptoms. The latter being the most

usual may first claim our attention, after which any peculiarities may be pointed out which distinguish the form that supervenes on catarrh.

First Stage. Idiopathic pneumonia, unattended with catarrhal symptoms, is usually preceded for one or two days by a condition of general feverishness, exacerbated towards evening, with fretfulness, pain in the head, and great restlessness at night; or, if the child sleeps, its repose is unsound; it talks in its sleep, or wakes suddenly in a state of alarm. Cough comes on; at first short and hacking, but often it seems to cause no uneasiness to the child, and is so slight as hardly to attract the parent's notice. The thirst is considerable, the appetite impaired, the child showing distaste for solid food; or it begins to eat greedily, then suddenly leaves off, with the half masticated morsel in its mouth. The tongue and lips are of a florid red; the former is less moist than usual, and is generally coated in the middle with a thickish white fur. The bowels are generally constipated, and vomiting is not infrequent, especially in infants at the breast, who suck eagerly and by starts, then vomit the milk unchanged, and soon seek for the breast again. In them too, even in this precursory stage of pneumonia, the tongue is sometimes quite dry. If, while a healthy infant is sleeping, the mouth be gently opened, it will be observed that the tongue is applied to the roof of the mouth, and that respiration is carried on through the nares. So soon, however, as the lungs become affected, even when no other symptom exists than general febrile disturbance, and, perhaps, the vomiting above alluded to, the infant will be seen no longer to breath solely through his nose, but to lie with the mouth partly open, and drawing in air through it. This imparts to the tongue its preternatural dryness, and the same inability to respire comfortably through the nares causes the child to suck by starts. The infant seizes the breast eagerly, sucks for a few moments with greediness, then suddenly drops the nipple, and in many instances begins to cry. As the disease advances, these peculiarities in the mode of sucking and of respiration often become more striking, but it is at the onset of the disease that it is of especial importance to notice them, since they afford most valuable indications of its real nature. Their value too is so much the greater from their being independent of those accidental circumstances which may modify so many of the other signs of pneumonia. There is not always marked dyspnœa at this stage of the disease, and the frequency of the pulse and respiration is so much modified by position and other causes, that

at the commencement of pneumonia very great dependence could not be placed on them, even if the fretfulness of the little patient, or its fears which the presence of the medical attendant often excites, permitted them to be counted with accuracy. Auscultation, too, if alone relied on, might possibly not guide the practitioner at once to the true nature of the disease; for all the above mentioned signs may exist, associated even with very notable increase in the frequency of the respiration, and in older children even with pain referred to the chest or abdomen, without any other auscultatory phenomena than intense puerility of the respiration with, perhaps, an occasional sibilus.

It is not always, however, that the advance of the first stage of pneumonia is so gradual as has just been described, for sometimes a child who has gone to bed well awakes towards morning in a state of alarm, refusing to be pacified, with a flushed face, and burning skin, and hurried breathing, and short cough. This sudden supervension of pneumonia is not so often met with among infants at the breast as among children from two to four years old. The alarming nature of the symptoms usually induces the parents to apply at once for medical aid, and cases which have commenced thus tumultuously appear to be as amenable to treatment as those which seemed at first far less violent. Even in cases where treatment has not been at once adopted, the storm generally subsides in twenty-four hours, and the disease passes into the second stage without presenting any further peculiarity.

Second stage. The first stage of pneumonia for the most part passes gradually into the second, the symptoms of disturbance of the respiratory organs becoming by degrees more and more apparent. Infants who hitherto had had moments of cheerfulness in the early parts of the day, or about noon, now no longer wish to be removed from the cradle or from the recumbent posture in their nurse's arm; and older children have quite lost all interest in their play, they become drowsy, ask to be put to bed, and cry if taken up. The respiration is now evidently hurried, the abdominal muscles are brought into play to assist in its performance, and the *alæ nasi* are dilated with each inspiration. The cough has become much more frequent; it still retains its hardness, but lasts longer, sometimes coming on in paroxysms, and often seems to cause pain, the child crying when it comes on, and laboring to suppress it, an effort which appears only to make it last longer and return more often. The bright flush of the face and the florid tint of the lips have gone, but the heat of

skin continues. It is now a pungent heat, which becomes more sensible the longer the hand is kept in contact with the surface. It is often unequal, the trunk being intensely hot, while the extremities, particularly the feet, are cold; and on inquiry it will be found that the temperature varies much at different times. The face has assumed a puffed, heavy, but anxious appearance, and when the child is very young, or the pneumonia very extensive, the lips put on a livid hue, which is also very evident around the mouth, while the face generally is pale. Anorexia continues, but the first is generally very urgent, and, in children who are not at the breast, vomiting for the most part ceases. Infants who suck, still very frequently vomit the milk, perhaps owing to the urgent thirst they feel inducing them to suck too greedily, and thus overload their stomachs; since they generally vomit almost immediately after leaving the breast, while they do not reject small quantities of fluid given from a cup or spoon. It will also be observed that the respiration of a child is now greatly hurried by the effort of sucking, that he drops the nipple panting from his mouth, or has not breath sufficient to make the vacuum necessary to bring the flow of milk.

Auscultation now detects mucous or crepitant rhonchus at the lower part of each lung, in which situation the air enters less freely than elsewhere. There is much difference even in cases which appear closely to resemble each other as to the extent of lung through which crepitation is heard as well as in the character of the crepitation itself. Usually, however, the crepitation is confined to the infra-scapular region, and it is of that kind which is known by the name of *sub-crepitant*. The results of percussion of this stage are often not very marked, but frequently a diminished sonoreity of the lower parts of the chest, as compared with the upper, may be detected, and the impression conveyed to the finger is that of greater solidity below and above the scapula. This last sign is often very valuable, since it may be perceived at a time when the ear cannot clearly detect any actual dulness on percussion.

Third stage. In idiopathic pneumonia, unpreceded by catarrhal symptoms, death hardly ever takes place in this stage; but if the disease is left to itself, or if it is unchecked by the remedies employed, the second stage passes into the third; a transition which usually takes place in from twenty-four hours to three days. The respiration now becomes more labored, and though its frequency is sometimes diminished, it will be found to have become irregular; several short and

hurried inspirations being followed by one or two deeper, and at longer intervals, and these again by hurried breathing. The cough sometimes ceases altogether, or if not, it is less frequent and looser, since it is now produced by the child's efforts to clear the larger air-tubes from the accumulating secretions. The voice is often lost, the patients speaking only in a hoarse whisper. The face looks sunken, the extremities are cold, and though the surface of the trunk is still hot, yet the skin has often lost something of its previous dryness, and clammy sweats break out, especially about the head. The pulse is extremely frequent and small, and its beats so run into each other, that it is almost impossible to count them. The child is extremely restless, tossing about from side to side, as much as its reduced powers will permit, or it lies in a state of half consciousness, though sensible when spoken to, and fretful at being disturbed. If raised hastily from the recumbent posture, or if put to the breast, the great increase of dyspnœa which is immediately produced, shows how seriously the respiratory organs are affected. In many cases too the livid hue of the face and of the nails are further proofs of the great impediments which exist to the decarbonization of the blood. This condition seldom lasts above two or three days; for either life becomes gradually extinct, without the supervention of any new symptoms, or convulsions occur which are followed by fatal coma, or the child recovers from it for a few hours, only to suffer a second attack of convulsions, and a return of the coma, in which state it dies.

The disease, however, does not always terminate fatally in this stage, but a kind of imperfect recovery sometimes takes place. A diminution is obvious in the more alarming symptoms; the patient begins to express some desire for food as well as drink, and even has occasional gleams of cheerfulness. The cough, which had almost or altogether ceased, returns, but it is hard and hacking as in the second stage, and though there is no urgent dyspnœa, the breath is habitually short. The skin is hot, dry, and harsh; the tongue is red, dry and sometimes chapped, or presents small aphthous ulcers at its edges; diarrhœa is not unfrequent; the child wastes daily, and dies in the course of a week or two, worn out and exceedingly emaciated.

The peculiarities which distinguish that form of pneumonia which is preceded by catarrhal symptoms, may be enumerated in a few words. The disease in this case often comes on insidiously, and developes itself gradually out of the preceding symptoms without its being possible to fix the exact date

of its attack. At other times, however, there is a well-marked accession of fever and dyspnœa, and an aggravation of all the symptoms sufficient clearly to point out the time of the supervention of the pneumonia. The fever and heat of skin are less than in the other form of the disease, but the dyspnœa and distress are usually greater, and the face presents from the first a more livid hue. The cough is less hard, but it often comes on in paroxysms which greatly distress the patient; the respiration is more hurried and more irregular, and this irregularity comes on at an earlier stage of the disease. Mucous and sub-crepitant rhonchus are generally heard very extensively in both lungs, but the true pneumonic crepitation is unusual; and the inflammation being in these cases very often of the lobular kind, it may happen that no predominant affection of the lower lobes can be discovered. Head symptoms are more frequent; the patients' rest is disturbed, and they often mutter in their sleep, and have far more restlessness and jactitation when awake. Convulsions and coma more frequently precede death, and death occurs at an earlier period than in the other form of pneumonia.

Such is a sketch, confessedly a most imperfect one, of pneumonia in childhood. It may be well to attempt, by more minute details on some points, to fill up the numerous deficiencies in the portraiture. Sydenham indeed was able, within less space than this rude outline has already occupied, to draw pictures of diseases, so graphic and so true that all the observations of after years have found in them little to add, nothing to expunge. They, however, who can never hope to emulate so great a master, must content themselves with literally following his instructions, that "morborum phænomena clara ac naturalia, quantumvis minuta, per se accuratissime adnotentur; exquisitam pictorum industriam imitando, qui vel nævos et lævissimas maculas in imagine exprimunt."

The modifications in the character of the respiration in pneumonia, and the physical signs of the disease are of such importance as to merit most careful examination. Some acceleration of the respiration is almost always observed in cases of idiopathic pneumonia, but its degree affords no certain measure of the extent of the disease, nor will it be altogether safe to infer the absence of pneumonia, from the non-existence of dyspnœa. It is my belief, however, that marked dyspnœa will be found in all cases of lobular pneumonia, and also in all those cases of lobar pneumonia which have been preceded by catarrhal symptoms, or are associated with them.

It is often absent, or so slight as to be readily overlooked in the pneumonia which complicates diarrhœa, remittent fever, and other abdominal affections; as also in some cases where the thoracic symptoms are masked by the signs of cerebral or abdominal disease, constituting the *pneumonia larvata* of the old writers, in which, both for the aid afforded by auscultation, the true nature of the ailment would probably not be discovered. The frequency of the respiration does not in general continue progressively increasing from the outset of the disease to its fatal termination, but its maximum frequency usually coincides with that stage of the disease at which the crepitant or sub-crepitant rhonchus has attained its greatest extent, and sinks again when bronchial respiration and dulness on percussion indicate that the lung has become solid. When the attack of pneumonia is sudden and violent, and unpreceded by premonitory symptoms, the respiration sometimes reaches its greatest frequency within the first twenty-four hours; at a time when the auscultatory signs are scarcely developed, and when the ear detects nothing but intensely puerile respiration with occasional rhonchus or sibilus. In lobular pneumonia, which sometimes runs its course in four or five days, death taking place before any portion of the lung has become hepatized, the respiration may go on increasing in frequency until death. It is in such cases that I have observed the respiration more accelerated than under any other circumstances, and in one child so affected I counted 108 inspirations in the minute. Although the respiration often sinks in frequency on the supervention of hepatization it does not by any means return to a natural condition, but almost always becomes irregular. One or two slow inspirations are now succeeded by three or four very hurried, and it will be observed that now, while the help of the abdominal muscles is called largely into play, the lateral expansion of the chest is almost none. The marked influence too, of removing the child from the recumbent posture, and placing it in a sitting position, in causing great acceleration of the breathing, at once shows that the diminished frequency of the respiration is not the result of any favourable change. It appears then, that unquestionably valuable as are the indications furnished by the frequency of the respiration, there are many other points beside the mere number of inspirations which merit to be taken into account. Of greater value than the frequency of the respiration considered alone, is its frequency as compared with that of the pulse. Whenever with a diminution in the frequency of the respiration, the number of the

pulse sinks too, we have a sign of amendment on which the most thorough reliance may be placed. It is of importance, however, always to bear in mind, how easily both the pulse and respiration are accelerated in young children; they ought both therefore to be counted while the child is in the recumbent posture, and before it has been disturbed or alarmed by auscultation, or by the examination of any other symptoms. It is better, too, if on any occasion this order of investigation cannot be followed, or if the child is fretful and cries at any attempt to ascertain these points, not to persevere, lest we be led by so doing to form erroneous conclusions as to the condition of the patient.

Physical Signs. The physical signs of pneumonia are no less important in the child than in the adult, but the practice of auscultation in the former is attended with difficulties which do not occur in the latter. To some, indeed, these difficulties have appeared so great as to induce them to regard the application of auscultation to young children as impracticable, whilst others insist on the insufficiency of the physical signs to establish an accurate diagnosis between bronchitis and pneumonia, and allude to cases in which "though unquestionable results of pneumonia were found after death, there was no crepitant rale and no bronchial respiration."* The valuable monograph of MM. Rilliet and Barthez, however, has sufficiently proved the possibility of deriving most important information from auscultation, and it is my conviction that with a little tact and a good deal of patience, pneumonia may be detected by its physical signs in the child, almost as surely as in the adult. It is true, that infants will not tolerate the application of the stethoscope, and that they will seldom allow any examination of the front of their chest; but the whole posterior part of the thorax may almost always be examined, and such an examination yields results which are of the greatest value. In practising auscultation, I have usually found it best to have the child taken from its cot and placed in a half-sitting posture in its nurse's arm. It is now possible, kneeling by the nurse's side, to listen to the whole posterior part of the chest unperceived by the infant, who does not appear to be incommoded by the pressure of the head against its back in the same manner as it is by the application of the stethoscope. Percussion too, may in this way be made upon the finger of the other hand so as to afford very useful information. Even in cases where children are most fretful and

* Maunsell and Evanson, op. cit. p. 306.

alarmed, and resist every attempt at auscultation, something may still be learned; for during the deep inspirations which interrupt their violent cries, air will enter freely, and from the sounds then heard by the attentive ear it will be easy to estimate the extent and stage of the disease.

It has seldom happened to me to see cases of infantile pneumonia from their commencement. In a few instances, however, when the onset of the disease has been sudden and violent, children have been brought to me within a few hours after the beginning of the attack. In these cases I have been able to confirm the observation of Dr. Stokes, that an intense puerility of respiration in the affected part will be found to be the principal phenomenon. On visiting these patients on the following day after their general symptoms have been greatly ameliorated by depletion and the employment of other remedies, I have no longer heard this intensely peurile respiration, but in its place the mucous or sub-crepitant rhonchus.

Cases such as those above described form the exception to the rule, and usually children did not come under my notice until the sounds indicative of increased secretion were audible in the lungs. These are either the mucous or sub-crepitant rhonchus or the true pneumonic small crepitation.

Mucous rhonchus. The mucous rhonchus is heard in most cases where catarrh has preceded the symptoms of pneumonia; it is, moreover, often heard in other cases of lobar pneumonia in the neighbourhood of the sub-crepitant rhonchus which usually occupies the lower and posterior part of the lungs. It is further heard occasionally in situations where the respiration has a distinctly bronchial character, and it very often persists in cases where convalescence has taken place, long after the disappearance of every other sign of pulmonary affection. It would be too much to assert that a portion of lung in which mucous rhonchus is heard may become solid without giving rise previously to any other physical sign, but it is certain, from the statements of MM. Rilliet and Barthez, that this change does sometimes occur so rapidly that bronchial respiration shall be heard to-day in a portion of lung, where on the day previous mucous rhonchus was the only sound the ear could detect. Of the accuracy of this statement I entertain no doubt, though I can confirm it from personal observation, only in as far as regards the *extension* of bronchial respiration not with reference to its *actual origin* in a lung. Often, however, I have detected bronchial respiration on one day occupying a very small portion only of one lung, while mucous rhonchus was heard in its neighbourhood,

and on the following day much of this rhonchus has vanished and bronchial respiration has become well marked through twice or thrice its former extent. The occasional co-existence of mucous rhonchus with bronchial respiration is doubtless owing to the accumulation of secretions in the larger bronchi; hence, when heard under these circumstances it is an accidental phenomenon, and one of no value. The mucous rhonchus must be looked on as one of the least important of the physical signs of pneumonia, since it was present in thirteen only of fifty-one children under five years of age, in whom I carefully noted the symptoms furnished by auscultation. Nevertheless, greater value must, as MM. Rilliet and Barthez observe, be attached to it in the child than in the adult, since it is in the former, at least occasionally, the immediate precursor of bronchial respiration, while in the adult it is never the herald or any such grave occurrence.

Sub-crepitant rhonchus. The sub-crepitant is a sign of far greater importance than the mucous rhonchus, whether we regard the frequency of its occurrence or the consequences which follow it. It was heard in forty-two out of fifty-one cases; in thirty-one of which it either had not been preceded by mucous rhonchus, or if it had, that had ceased before the patients came under my notice. In thirteen cases it was associated with true crepitant rhonchus in some other part of the lung, or crepitant rhonchus succeeded it. In fourteen cases it was followed by bronchial respiration, and in six of these the bronchial respiration succeeded directly to it, without crepitant rhonchus having at any time been audible in those parts of the lung which became hepatised. Unlike the mucous rhonchus, it is not a transitory phenomenon continuing only for a few days, but it is a sign which, after the disease has once become established, persists until either the occurrence of mucous rhonchus in its place indicates that the lung is recovering, or the supervention of crepitant rhonchus or of bronchial respiration makes it evident that the morbid process is advancing unchecked.

Crepitant rhonchus. In twenty-two cases true crepitant rhonchus was heard, such as distinguishes the pneumonia of the adult. In fourteen cases it had been preceded by sub-crepitant rhonchus or was associated with it. In these instances it occupied a smaller extent of lung than the sub-crepitant rhonchus, and sometimes was confined to one lung while the sub-crepitant rhonchus only was heard in the other. Twice it succeeded directly to mucous rhonchus, and in six cases it was heard unattended either with mucous or sub-

crepitant rhonchus. In fourteen instances it was the immediate precursor of bronchial respiration, and was heard in parts of the lung near that in which the bronchial respiration was audible. The sub-crepitant rhonchus is sometimes a sign of the resolution of pneumonia, not so the crepitant, which I heard only when the disease was advancing, never at its decline, and its duration is far shorter than that of the sub-crepitant rhonchus, seldom exceeding two or three days.

It seems to be agreed on all hands that true pneumonic crepitation is of much less frequent occurrence in children under five years of age, than in the adult. Some writers indeed have gone so far as to deny its existence at this period of life, an opinion which MM. Rilliet and Barthez have shown to be erroneous. It does not, however, admit of doubt that the true crepitant rhonchus is decidedly less common in the child than in the adult, though it may not be easy to assign a satisfactory cause of this difference. Some value must probably be attached to the circumstance that while the frequency of the respiration in children is usually considerably increased under the influence of pneumonia, they no longer inspire so deeply as to fill the smaller air-vesicles, but the power of the respiratory muscles seems to be diminished, and the respiratory movements appear to be increased in frequency in order to compensate for their diminished energy. That some influence must be attributed to this cause is rendered further probable by the fact, that in the pneumonia of old persons, according to MM. Hourmann and Dechambre,* a similar absence of crepitant rhonchus is frequent. Another proof of this is afforded by the fact that in infantile pneumonia sub-crepitant rhonchus will frequently be the only sign perceptible until the child begins to cry, when in the deep inspiration which follows a fit of crying, the air that previously permeated only the larger air-tubes now enters the pulmonary vesicles, and at that moment distinct small pneumonic crepitation will be heard.

Bronchial respiration. Bronchial respiration was heard in 20 cases, in 5 of which it was detected in both lungs, in 7 it was heard only in the left lung, in 8 only in the right. It always existed in the infra-scapular region, though it was not by any means invariably confined to that situation. It sometimes supervened with great rapidity, occupying the whole of the lower half of one lung within twenty-four hours, and occasionally disappearing, as has been observed by Dr. Stokes

* Archives Générales de Médecine, 2e serie, tome xii. p. 45.

in the pneumonia of adults with similar rapidity, leaving no trace of its existence but large sub-crepitant rhonchus amounting almost to mucous rhonchus. Usually, however, it came on more gradually, occupying situations where crepitant or sub-crepitant rhonchus had been previously heard, and continued to be audible in cases which eventually terminated favourably for a week or even longer. Sometimes the bronchial respiration was unaccompanied by any other auscultatory sign in the same lung, but in the majority of cases sub-crepitant rhonchus was heard in its neighbourhood, and not unfrequently mucous rhonchus in its very situation. When resolution of the hepatised lung took place, I never heard a return of crepitant rhonchus, but sub-crepitant rhonchus in most cases became audible; in a few instances mucous rhonchus. In either case mucous rhonchus was eventually heard, and it often continued for many days after the lung had, in other respects, recovered its natural condition; apparently much as in the pneumonia of the adult, a prolonged expiration often persists for a long time after all the other signs of diseased action have disappeared. Bronchial respiration must be regarded as a very grave sign, since in 11 out of 20 cases in which it was heard, the disease had a fatal termination.

Results of Percussion. Though the results of percussion are decidedly less valuable than those of auscultation, yet this mode of investigation is by no means to be passed over as valueless. It is true that the great natural resonance of the chest in the young subject, the circumstance that both lungs are usually affected, and the restless fretfulness of the patient, render it less trustworthy than in the adult. Still a difference between the upper and lower part of the chest is generally appreciable long before bronchial respiration becomes audible; when bronchial respiration exists, dulness on percussion can always be detected, and even if it should be necessary to percuss with the utmost gentleness, so as scarcely to elicit a distinct sound, the finger is yet sensible of the presence of solid lung beneath. In cases, however, where the child cries even at the gentlest percussion, I think it better to give up the attempt, rather than by persevering in it to make the little patient dread the presence of his medical attendant, an occurrence which it is of extreme importance to avoid.

Diseases with which Pneumonia may be confounded. Before altogether dismissing the consideration of the symptoms of pneumonia, some notice must be taken of those errors of diagnosis into which the practitioner is most likely to fall. There are two stages of pneumonia, at each of which there

is considerable danger of mistaking it for some other disease, namely, just at its commencement, and after it has existed for some considerable time.

Hydrocephalus. Pneumonia in its early stage may be mistaken for incipient hydrocephalus. The vomiting, pain in the head, restless nights with occasional wandering in the sleep, and the constipated state of the bowels common to both diseases, lead to this error. The cough in some cases of pneumonia is so slight as scarcely to be noticed; perhaps no catarrhal symptoms ushered in the disease, and not unfrequently the child's complaints are of his head, and of nothing else. But still there are circumstances, which, wholly independent of auscultation, would lead the careful observer to discriminate accurately between hydrocephalus, or cerebral congestion, and pneumonia. The vomiting in hydrocephalus is extremely frequent in its recurrence, the stomach immediately rejecting even the blandest fluid, and the matters vomited often have a greenish tinge, and this irritability of the stomach sometimes continues for days. The sickness in pneumonia resembles that which sometimes ushers in an attack of fever; it is violent, but does not in general continue long. The bowels are constipated in both diseases, but the evacuations of a hydrocephalic patient are either white from the complete absence of bile, or more frequently of a dark mud colour. The tongue in hydrocephalus is usually less furred, it is always of a less vivid red, the pulse, though frequent, has not the character of fulness, the heat of skin is far less, the thirst is absent. If these indications, however, be overlooked at the commencement of the attack, and if auscultation, by which the error might still be set right, be neglected, it is probable that each subsequent occurrence will be misinterpreted, and that the real nature of the disease will not be understood until it is revealed by the *post-mortem* examination. More or less sympathetic affection of the head is seldom wanting in pneumonia, to confirm the preconceived, erroneous notion; while as the child grows worse the difficulties in the way of making a careful auscultation increase. Convulsions too sometimes come on, and for days before the fatal termination the cerebral symptoms may be far more prominent than those indicative of affection of the lungs.

Peritonitis. Pneumonia may likewise be confounded with peritonitis or enteritis. The general febrile symptoms are common to both diseases, the little patient complains of pain in the belly, and cries, or show signs of uneasiness if pres-

sure is made on the abdomen. The tongue is red, and in young children it often becomes dry from their lying with their mouth open; and poultices and leeches give at least temporary relief. It should, however, be borne in mind, that while pneumonia is a very common disease in childhood, acute peritonitis is one of very unusual occurrence. The child too does not select his posture with that great attention to guarding the abdomen, which he would display, if labouring under peritonitis. With reference to the complaint of pain in the abdomen, and its intolerance of pressure; it is of importance to remember that the statements of children with reference to the seat of pain are very vague, and that they frequently speak of pain in the belly when they mean the chest; while the impediment to the descent of the diaphragm occasioned by pressure on the abdomen, especially if this pressure is either sudden or considerable, will almost always excite expressions of uneasiness when the organs of respiration are in any way affected.

Dentition. Perhaps pneumonia is never so frequently overlooked as when it comes on in children during teething. It often happens among the poor that these cases are not brought to the medical practitioner until after the inflammation of the lungs has been proceeding for some days unchecked. Its early somptoms have probably been regarded merely as the catarrh which is incidental to children when cutting their teeth; and thus the parents, and sometimes too the medical attendant, allow the time for action to pass by unused. The disease in this case sometimes runs a chronic course, and its nature is further obscured by the tendency to diarrhœa, which exists during dentition, and which is now excited by the thoracic affection. This often becomes the most striking symptom, and all means are employed to suppress it, and to check the vomiting which generally attends it. These efforts, however, are unavailing, the child wastes daily, and its skin hangs in wrinkles about its attenuated limbs, while the abdomen becomes tumid, from the collection of flatus in the large intestines, and tender on pressure, and the tongue grows red, dry and chapped, or covered with aphthous ulcers. The cough now perhaps attracts notice, but its occurrence serves only to console the doctor with the belief that these symptoms have depended on phthisis, and that he has failed to afford relief because the disease was in itself irremediable. At last the child is worn out and dies, and great is the surprise to find no tubercle in any part of the body, no disease in the intestines;

but pneumonia with purulent infiltration in both lungs; a disease which ought to have been detected, and which probably might have been cured.

Treatment. I will now endeavour to sum up as briefly as possible what I think I have learned of the treatment of this disease by careful and unprejudiced observation. I do so, however, with great diffidence, for I feel that none but they who have grown gray in the practice of their profession, and who can preface their remarks by appealing to "lengthened meditation, and to the diligent and faithful observation of many years," are in a position to claim for their opinions on such a subject any consideration. I can only plead my excuse, in the words of Sydenham; if indeed there be not something of presumption in borrowing the expressions of that great man: "Cæterum quantacunque fuerint aliorum conamina, semper existimavi mihi vitalis auræ usum frustra datum fore, nisi et ipse in hoc stadio versatus, symbolum aliquod, utcunque exiguum, in commune Medicinæ ærarium contriburem."

Depletion. The first rank as a curative agent in the treatment of idiopathic pneumonia, I would unhesitatingly assign to depletion. It is true indeed that on this, as on some other points, my experience differs from that of French writers who have studied the disease at the children's hospital at Paris. One of these gentlemen* has affirmed that depletion, whether general or local, invariably debilitates the organism, and accelerates the fatal event. True as this assertion may be of pneumonia occurring under the peculiar circumstances which that institution presents, it cannot be extended to it as it is seen in this country. In no case of idiopathic pneumonia which came at an early stage under my notice, have I had occasion to regret the employment of depletion carried so far as sensibly to affect the system. In children of two years old and upwards I have usually resorted to venesection; but in younger subjects have contented myself with the application of leeches. From a child of two years old I have been accustomed to take four ounces of blood, and to direct the application of four or six leeches beneath the scapulæ if the symptoms should appear unrelieved after the lapse of a few hours. The effects produced by one bleeding in some of these cases have been most striking; the violent symptoms have sometimes yielded at once, and recovery has gone on uninterruptedly almost without the employment of any other

* M. Becquerel, in the Archives Générales de Médecine, 1839, p. 471.

remedy. Of the frequent repetition of bleeding in *these cases*, whether from the arm or by leeches, I have no experience, but my conviction is that children *generally* bear repeated bleedings ill, and I therefore do not practise them. That form of pneumonia which developes itself out of catarrh appears to be least under the control of depletion; no instance having come under my notice in which the attack was cut short by its employment, though here too, local bleeding at the outset is often beneficial.

Tartar-emetic. The tartar-emetic is a remedy of great value in the treatment of pneumonia; but I can by no means subscribe to the unqualified recommendation of it by some French physicians in all forms and at all stages of the disease. I would rather say of it what Wolfgang Wedel says of opium, "Sacra vitæ anchora, circumspecte agentibus, Cymba Charontis in manu imperiti." The cases in which it has seemed to me to be of the greatest service were those in which the pneumonia developed itself out of previous catarrhal symptoms, or in which it supervened on measles, or came on in the course of hooping-cough. In such cases, antimony given in doses of a quarter of a grain to a child of two years old, repeated every ten minutes, till free vomiting is produced, and afterwards continued every two or three hours for forty-eight or sixty hours, has often appeared to be of the most essential service, and the preservation of the patient's life has seemed in several instances to be due to its employment. In pneumonia, too, which has not been preceded by catarrhal symptoms; if after venesection the respiration still continues as hurried as before, and the condition of the patient has been apparently but little improved by that measure, tartar-emetic has seemed to be extremely useful. I have been accustomed to give it in large doses, as a quarter of a grain for a child two years old, and to repeat it every two hours for twenty-four hours, and have observed its use to be followed by a great diminution in the frequency of the respiration, and considerable relief to the distress of the patient; and believe that when given in these cases it paves the way for the advantageous employment of mercury. In no instance, however, in which pneumonia had been neglected, so that the period for depletion was past, and in which distinct bronchial respiration was audible, have I seen beneficial results from the employment of antimony in large doses, as recommended by many French practitioners. It is true that the heat of skin will subside and the respiration will diminish in frequency; thus inducing a treacherous appearance of im-

provement; but the strength of the patient is seriously impaired by it, the occurrence of a comatose condition, or of what the Germans have called the paralytic stage, will be hastened, and the fatal event accelerated, as I have learned by sad experience in cases where I gave this mode of treatment a full trial. It is not meant, however, that after the supervention of bronchial respiration, antimony ought never to be given, but only that under such circumstances it has appeared to me that it should not be employed except in small doses and in combination with other remedies.

Calomel. A very high rank as a remedial agent in the treatment of idiopathic pneumonia must be given to calomel. I have been accustomed, after due depletion, to administer calomel in doses of two grains, combined with a quarter of a grain of tartar-emetic, and half a grain of Dover's powder, and to repeat it every four hours for children of four years of age; diminishing the antimony after the lapse of twenty-four hours, if distressing sickness were occasioned by it, but persevering in the use of the calomel, provided the patient were not over-purged, until the disease began to yield or the gums showed signs of the mercurial action. The latter occurrence has been by no means frequent, and in no instance have I met with dangerous mercurial affection of the mouth from the employment of calomel in these cases. It has always been my custom to suspend the use of calomel for twelve hours immediately on the first appearance of mercurial affection, and if after the lapse of that time the signs of mercurialization had not increased, to return to its use in smaller doses, and repeated at longer intervals, provided the symptoms of pneumonia were so urgent as to demand its continuance. I have oftener been harassed by the purging which calomel induces, though this may be in a great degree controlled by combining it with Dover's powder. Besides the inconvenience and danger attending over-purging, calomel has seemed in some instances, especially in infants, to occasion a very harassing nausea and vomiting, which have rendered its discontinuance necessary, lest the patients should suffer from the want of sufficient nutriment. In such cases I have had recourse to mercurial inunction, and under its employment recovery has taken place even where circumstances had seemed to warrant none but a most unfavourable prognosis. It is especially in cases of neglected pneumonia, where the time for depletion has long gone by, where the administration of antimony is evidently contra-indicated by the exhausted state of the patient, and where the existence of

diarrhœa forbids the employment of calomel, that the full value of this remedial agent is seen. I have employed it in the proportion of one drachm, rubbed into the thighs or axillæ every four hours, in children of four years of age. I have never observed salivation induced by it, but have seen the symptoms gradually diminish in severity during its employment, and the solid lung become once more permeable to air.

Stimulants. Usually, when the employment of mercurial inunction is indicated, the time for all directly depressing measures has long passed, and the best means of supporting the patient's strength become matter for serious consideration. No point in the treatment of the disease is more difficult than that of seizing the exact moment when the employment of stimulants becomes necessary, and no general rule for regulating their use can be laid down. It has, however, appeared to me to be seldom safe to withhold them when extensive bronchial respiration exists in a case on its first coming under the care of the practitioner, or when it has supervened in spite of active antiphlogistic treatment. If the patient, too, is beginning to be much purged; if the respiration is becoming more laboured and irregular, though diminished in frequency; aad if the pulse is becoming more frequent, and above all smaller and smaller, it is high time to resort to their use. Wine is as indispensable in such cases in the pneumonia of children as in that of the adult, and it may be necessary to give it even to infants at the breast. Ammonia may also be advantageously administered in this stage of the disease either in a mixture with the decoction of senega, or dissolved in milk which conceals its disagreeable pungency better than any other vehicle. If diarrhœa does not exist, strong beef-tea or veal-broth is the best form in which nutriment can be given; but if the bowels are relaxed, arrow-root or the *decoction blanche** of the French hospitals should be substituted for it.

Blisters. Blisters would probably be employed about this time in the treatment of pneumonia in the adult, but I cannot recommend their application in children. One objection to them arises from the time which elapses before they rise sufficiently, during the greater part of which they inflict considerable pain on the little patient, and make him extremely

* This, which is similar to the white decoction of Sydenham, is prepared by boiling half on ounce of hartshorn shavings, and the inside of a roll, in three pints of water, till reduced to a quart.

restless. The sores they produce when they cause vesication are sometimes very dangerous; they may even become gangrenous, and occasion the patient's death. Even if no such unfavourable results follow, they are nevertheless a source of constant annoyance to the child, at first from their soreness, afterwards from the troublesome itching which is felt when they begin to get well. Some pain is unavoidably produced whenever the dressings are changed, and the frequent repetition of this painful process sometimes makes the child, take a dislike to its attendants, who seem to it be the causes of so much suffering. It becomes suspicious of every one and quite unmanageable, while nothing is of greater moment than that a sick child should retain its fondness for its attendants during the whole period of its illness.

Mustard-poultices. It is quite possible that some of these objections may be obviated among the children of the wealthy by that care and those comforts which riches can always command, but I have been led, by the reasons above stated, to discontinue the employments of blisters in the treatment of pneumonia among the children of the poor. The same objections do not apply to the employment of mustard-poultices, and in many instances they have seemed to be productive of great good. They produce a much more speedy effect than blisters, and may be applied with safety over a much larher surface, hence they are often of signal benefit in relieving sudden accessions of dyspnœa; while from their not occasioning any breach of surface they may be reapplied as often as the emergencies of any case require.

Of the subsidiary medicinal agents, such as ipecacuanha and the class of expectorants, nothing need be said; but there are one or two points in the general management of the disease not altogether unworthy of notice.

General management. It is desirable, in all cases of pneumonia, at all severe, that infants should be taken from the breast, and that the mother's milk should for a time be given them from a spoon. This is of importance on two accounts; partly because the thirst they experience induces them to suck overmuch (hence it is well that barley-water or some other diluent be given to them frequently instead of the milk, in order that they may quench their thirst without overloading their stomach); partly, because the act of sucking is in itself mischievous, since, as must at once be perceived, it taxes the respiratory functions to the utmost.

A second important point is never to allow the children to lie flat in bed or in the nurse's arms, but to place them in a

semi-recumbent posture in the arms, or propped up in bed. By so doing respiration is facilitated, since the diaphragm is relieved from the pressure of the abdominal viscera, and that stasis of the fluids in the posterior parts of the lungs is prevented, which has been shown by French writers to be so prejudicial to infants or children labouring under pneumonia.

The only other point to which I will allude is, that when pneumonia has reached an advanced stage, or has involved a considerable extent of the lungs, the children should be moved only with the greatest care and gentleness, lest convulsions should be brought on. Whatever may be the explanation of this occurrence, the danger is by no means an imaginary one, for I have seen instances in which children have been seized with convulsions immediately on being lifted somewhat hastily from bed and placed in a sitting posture; and on this account I have referred to what might seem to be a trivial matter.

Bulletin of Med. Sciences.

Poisoning by Arsenious Acid ultimately detected by Examination of the Liver.—To the Editor of the Lancet.—Sir,—Having been for some years past an attentive reader of your valuable Journal, and having received much pleasure and instruction from its perusal, I consider myself bound to communicate to it, in return for my enjoyment, what little information it may be in my power to contribute.

The case which accompanies this note was to me highly interesting, and presented several facts that were worthy of reflection. Perhaps the most important is the discovery of arsenic in the liver in great abundance, after numerous experiments upon the stomach and its contents had failed to detect it; thus illustrating the important medico-legal fact, first promulgated by Orfila, that this poison *often disappears from the stomach by absorption, and becomes separated from the blood of the portal system by the liver*, and that it might be detected there, even after all evidence of its presence has elsewhere vanished. I regret that no opportunity occurred of examining the urine, since the bladder was empty; but evidence existed of inflammation of the mucous membrane of the pelvis of the kidney and ureters. Could that have resulted from the action of this poison? Believe me to be, Sir, your's most obediently,

William Bird Herapath.

Pupil of the Bristol Medical School.

Old Park, May 10, 1843.

Post-mortem appearances. The stomach and its contents; various white matters found therein; great inflammatory action on its mucous surface. Effusion of coagula. The ovaries encysted, and the Fallopian tubes closed and dilated into serous sacs. Local inflammation of the peritoneum. Fluidity of the blood in the heart's cavities. Congestion of the lungs. Chemical experiments on the fluid contents of the stomach, on a portion of that viscus, and on the various white matters and specks found in it, and upon the blood of the right side of the heart but little arsenic found so far; arsenic found in the liver, in much greater quantity.

June 14th, 1842.—Jane Burns, ætat. 31, having died suddenly at her lodgings, and under suspicious circumstances, Mr. Grindon, the coroner, ordered a post-mortem examination of the body to be made. Mr. Ormerod, having been the medical man in attendance upon the deceased, was instructed to perform it, and having called upon me to conduct the chemical examination of the case, I requsted to be present at the opening of the body, which we found in an upper story of a lodging-house kept by a Mrs. Brown, living in Newfoundland-street, St. Paul's. Its exterior presented no marks of violence; it was much discoloured in the dependant portions by the gravitation of blood. It was fat and plump, and in very good condition, and presented the appearance of a party dying in the prime of life. Death could only have recently taken place, since the limbs were still rigid. The body was opened in the usual way, and the contents of the thorax and abdomen were exposed.

The lungs were full and prominent; they did not collapse upon allowing the pressure of the air to exert its influence; not emphysematous; no tubercles seen, if we except a small cretaceous one in the base of the lower lobe on the left, the size of a pea. The lungs were engorged with blood almost as if asphyxia had caused death; upon cutting into them it flowed out in quantities. The black pulmonary substance was deposited in its usual situation; two or three small black bodies, as large as sparrow-shot, were seen in the interlobular fissures, probably enlarged lympatic glands blackened by this substance.

The pericardium contained only a teaspoonful of serum.

The heart large and flabby; right auricle and ventricle distended with black fluid blood; this was collected for experiment, about six ounces were obtained; the left cavities also

contained blood, but not to the same extent, this was also preserved with the other; no coagula on either side. Valves: lining membranes all healthy.

The pleuræ contained several ounces of serum, but this was, through an oversight, not saved for examination.

The abdominal cavity and its viscera.—The peritoneal surface of the small intestines had a beautiful pink tinge, similar to the hue of a maiden's blush rose; several vessels very distinctly marked. Omentum fat, but healthy; upon pulling up the small intestines (a few coils of the ileum) from the cavity of the pelvis, several bands of organised false membranes were found connecting them with the uterus and with each other; these bands were highly vascular and organised; the peritoneal disease was local, extending only to about the five or six inferior convolutions of the ileum, and were consequently found on the right side. The cœcum was *not* affected in this way, nor its appendix. Other intestines healthy in external appearance.

The stomach was next removed, having previously placed ligatures upon its œsophageal and pyloric orifices, removing about an inch of the œsophagus and duodenum at the same time. Upon opening this organ it was found to contain about half a pint of thick grumous fluid, yellowish-red in colour, some half-digested portions of food in it, too much altered to be recognised. These contents were preserved in clean bottles and sealed. The mucous surface of the stomach presented several appearances worthy of notice; its greater cul-de-sac, and a portion of the greater curvature, had a dark livid-red colour; upon closer examination, a clot of blood was seen to have been effused upon its surface and also beneath the mucous membrane. The rugæ were very distinctly marked, and many of them deeply injected and highly inflamed; its pyloric portion was scarcely affected, but the mucous follicles were enlarged, and numerous *white specks* were sprinkled over its surface. Upon raising the coagulum, the mucous membrane was highly inflamed and much softened, being easily torn by the nail. Throughout every part of the stomach these white specks were seen, but they were more numerous in the foveolæ or pits between the rugæ. Some *patches* of white matter were observed upon the coagulum before spoken of, some were also scattered upon the suface of the lining membrane of this organ; but a *peculiar white, shining,* (apparently) crystalline body was seen everywhere diffused. (There was another white body present, but this was *not seen* at this time.)

The stomach was now carefully placed in a new bladder, and reserved for re-examination at more leisure.

The duodenum was removed and examined, but contained only a little fluid, and its appearances were not much worthy of remark. The jejunum contained some fluid and gas; about five ounces were preserved like those of the stomach. One or two red spots upon its mucous membrane, but considered unimportant. The ileum was not examined through its whole length; those portions which were opened presented little worthy of remark, even the membrane of that part whose peritoneal coating was so inflamed, was perfectly healthy. The large intestines not minutely examined. The liver was gorged with blood, but healthy in structure; about half a pound was preserved for subsequent examination. Soon after this I found upon my finger a distoma hepatica, or fluke, it was still alive, and had the usual greyish colour of those found in the liver of the sheep; no others could be seen.

The pelvic viscera were next examined.

The finger inserted into the vagina reached the neck of the uterus without difficulty; it was large and well marked; the os tincæ large and elongated; although not pregnant, she might have had a child; she could not have had *more*, as the skin of the abdomen presented none of those seams so well known as the results of pregnancy.

The uterus was of the normal size and unimpregnated; upon its exterior the remains of the false membranes were found which had connected it with the convolutions of the ileum. The Fallopian tubes and right ovary were rather remarkable, and appeared as if they contained an extra-uterine conception. The whole contents of the pelvis were, therefore, taken out with care for closer examination. The bladder was empty. This was to be regretted, as valuable indications might have been obtained of the presence of arsenic in the urine. The kidneys were congested with blood, and the calyces contained some muco-purulent fluid, and apparently the mucous membrane was inflamed, as it was highly vascular. Was this the result of gonorrhœa or of arsenic? no other evidence of the former disease existed. I am inclined to the latter opinion, but cannot prove its truth.

To return to the genital organs. The uterus upon being opened was healthy and empty; the mouth admitted the handle of a small scalpel easily. The Fallopian tubes were both encysted, the fimbriated extremities being adherent to the recto-uterine fold of peritoneum on the left, but to the enlarged ovary on the right. Their ostea-uterina were oblite-

rated, the adhesions were probably old, as they were organized. The right tube being opened, about two or three drachms of yellow serous fluid escaped; very little fluid flowed from the left, scarcely a drachm, but no fœtus in either. The left ovary contained several cavities; one seemed to communicate with the peritoneal cavity, as an opening was found having rounded edges and not appearing as if cut, this cavity would have lodged a pea; the internal surface was slightly yellow; all the sacs were empty and communicated; three or four were found.

The right ovary was at first, from its feel and appearance, supposed to contain an extra-uterine conception, and it was opened rather reluctantly; it evidently contained a fluid and a solid; this was rounded and not well defined. Upon making a puncture, about two ounces of reddish serum (sero-sanguinous fluid), escaped, and a solid body with a shaggy surface was seen blocking up the orifice; this was, therefore, enlarged and the body turned out; it was found to be a coagulum of blood (?) homogeneous in texture, but yellowish within. The walls of this cyst were lined by a false membrane, upon the removal of which the serous shining surface of the cyst appeared. The whole ovary was as large as a tennis-ball. The peritoneal coat presented the remains of the false membranes attached to it, thus holding the ileum down firmly, as before stated. The walls of the ovary only one-sixteenth of an inch thick, and *none* of the healthy structure of the ovary remained.

Did the peritoneal inflammation result from the rupture of a similar cyst in the left ovary and the escape of the fluid into the peritoneal cavity? I am inclined to think that it did. It is clear that she could not have been pregnant, and doubtful if she ever would have been again, had she lived.

The woman is a native of Ireland; her maiden name was Maggs. She married a man named Wright, who died; she then married a sergeant (now in India), but she formed a disreputable connection with a man living at Cathay, and was in the habit of meeting him every Saturday night, at a public house, and he then usually accompanied her home; but on the 11th instant they quarrelled, and he did not go home with her. On Sunday morning she was found ill, having previously written some letters with pen and ink borrowed from her landlady, together with a prayer-book; some time after this a little girl was sent up stairs to fetch these things back and found the door locked on the inside. By-and-by the landlady heard a noise up stairs, and found the deceased very

ill, and groaning terribly. She fetched her neighbour, and then the woman asked for water, and soon afterwards was sick, and "vomited a large quantity of white stringy fluid," which they foolishly threw away. To a medical man who was sent for she complained much of her heart, and appeared in great agony, rolling and tossing in her bed, but he could gain very little information from her. She either would not or could not answer his questions. Before any medicine could be prepared she died. In her room he found in her reticule a small paper packet (with "arsenic, poison," written on the outside), containing a white powder.

She had only been in the house a week, and upon taking the lodgings had stated that her husband lived in Bath, but came home on Saturday nights, and would then pay the rent. She added that she believed herself to be *enciente*, but the post-mortem examination clearly proved that this suspicion was unfounded. It was evident that she could not have been recently delivered. It is doubtful whether she *ever* had a child, although the uterine orifice was not in its virgin state. The disease in the ovaries and Fallopian tubes would prevent her from becoming pregnant. Although it is not very probable that this was a congenital malformation, yet it must have existed for some time, perhaps for several years. The peritoneal disease must have been old too, since the membranes were organised, and no recent lymph or fluid was effused.

The congested state of the lungs and the engorgement of the right side of the heart, would seem to point to asphyxia as the immediate *precursor*, if not the *cause* of death.

But the gastric symptoms must have been acute with such extensive disease; the inflammation was intense, blood and coagulable lymph having been effused, together with softening of the mucous membrane, in patches, all being evidences of acute gastritis, and appearing to point to a corrosive poison as the proximate cause. The abundant presence of white particles, &c., in the stomach, seemed to support this conclusion.

Under these circumstances I commenced the chemical examination with alacrity, expecting to find it in abundance, and in every portion used.

I first assured myself, by reducing the metal, that the substance *contained in the paper* found in her reticule was arsenious acid; again oxidising it, and obtaining the green arsenite of copper, the yellow sulphuret of arsenic.

A. I took a portion of the fluid contents of the stomach.

About four ounces were evaporated to dryness (during the boiling a strong smell of toasted cheese was perceptible); it was next mixed with nitre, and deflagrated in a pure silver dish. When all the animal matter was destroyed, and the dish and contents allowed to cool, it was treated with water until dissolved, then filtered. To the clear solution acetic acid was added in small portions, until a slightly acid reaction appeared evident to litmus paper, carbonic acid being evolved; a current of sulphuretted hydrogen gas was then passed through this. A brownish-white was thus obtained. The fluid was now boiled to expel the excess of hydrosulphuric acid and to assist the coagulation of the precipitate. It was now set aside, in order that the precipitate should fall. Next day the supernatant fluid was removed by the pipette, and the precipitate dried. It was then treated with a little water, and got into a smaller compass, and again allowed time to subside. This water was again removed by the pipette, and I again dried the precipitate. Having now well dried some charcoal and carbonate of soda, small portions of these substances were mixed intimately with half of the precipitate, and introduced into Berzelius's reducing tube by means of a small funnel, and then, upon cautiously applying heat, so as to expel a small portion of water (which always remains notwithstanding all your care), and having removed this by means of a small coil of bibulous paper introduced into the tube for that purpose, the bulb of the tube was heated to bright redness; a little sulphur rose or sublimed. Beneath this ring of sulphur the merest trace in the world of a *dark ring* was perceptible, but this was not sufficient to be able to say that it was arsenic, although a *very suspicious* circumstance. (I preserved this.) The second portion, treated in the same way, gave similar results. Upon endeavoring to pass this portion through the usual series of tests for arsenic in solution, no results were obtained.

B. In the intervals occurring in the progress of this experiment I took about two or three inches square of the *pyloric extremity* of the stomach (here, be it observed, the white specks were most numerous) and dried it in an oven, having previously washed its surface, to obtain the white particles. The washings were evaporated to dryness, and treated precisely in the same way as the last, but not the slightest trace of arsenic was perceived.

C. The solid portion of the stomach from B was treated exactly in the same way. The residue was subjected to the

same process as in A: a slight smoky tint only obtained by reduction, but *far* from being conclusive. I preserved this as a specimen.

D. During the spare time, whilst these experiments were on hand, I took four or five ounces of the blood, evaporated to dryness, constantly stirring it, and treated this by the same process. Had I been able to forsee the *results* of these experiments I should not have tried this, as these were still *in umbrâ*. I commenced this merely as an experiment from curiosity, as all the previous experiments could not be finished until the next morning. This was treated precisely as before, and in the morning it was reduced, but nothing rose, a ring of sulphur only subliming,

E. Having so signally failed in all these trials I began to feel annoyed; for being morally certain that arsenic had caused death, why was it not found? The process had proved successful over and over again in my hands, and my father has been eminently successful with it. Then why was it fallacious here?

I now searched for other poisons, and as the mineral acids were likely bodies, these formed the indices for experiments, but none were present.

Then it occurred to me to examine more closely the substances still adhering to the surface of the stomach. Had all these white specks, &c., been arsenic, not the least difficulty could have happened with regard to them.

First. Multitudes of small, white, shining, crystalline globules, were present, but of a very *small* specific gravity, and having a silky lustre. Placed on a Stanhope lens they were very transparent, and not unlike granules of starch; but tincture of iodine gave no indication of that substance. They were insoluble in acetic acid; ammonia, boiling, partially dissolved them, as did potash. Were they fatty grains? I think so. They were everywhere seen upon the stomach, more in the pits than on the rugæ, *floating on the fluid.*

Second. A more opake white substance, found near the pyloric end, more like arsenious acid, but when placed on the Stanhope lens they proved to be soft and plastic, were not gritty between the nails; when placed in a small tube and heated they intumesced, charred, and smelt strongly of toasted cheese. A crystalline white body sublimating, this was not soluble in water, and the water, when tested for arsenious acid, gave a *blue* precipitate with the ammoniacal sulphate of copper; they were not arsenic, neither did they contain any.

Third: A third white substance; white patches: these were

apparently fibrinous. Took a portion of the coagulum with these patches upon it, boiled in strong nitric acid, again and again, until no red fumes of nitrous acid evolved. then evaporated to dryness, A fatty body left; upon adding ammonia, an orange, soapy compound; this was then treated with acetic acid and sulphuretted hydrogen, as before the precipitate attempted to be reduced, but nothing sublimed.

Fourth. I scraped a portion of the mucous membrane with a spatula; the mixed body, &c., were acted on by nitric acid, as in the last experiment, and neutralised by ammonia. Upon dissolving by the aid of heat, a yellowish soap, as before; upon testing this solution by the copper, silver, and sulphuretted hydrogen tests, something like the precipitates were obtained. However, as these could not be depended upon, as the animal soap was present, this was deflagrated with nitre, as in A (after previous evaporation to dryness), and being treated as before, nothing rose.

Fifth. I was now obliged to attend the inquest. Having only suspicions of the presence of arsenic, I gave my evidence in a guarded manner, and having detailed these results, requested an extension of time; but the coroner and jury thought, notwithstanding my having stated my belief that it was present, that nothing would be gained by the delay, especially as the evidence all tended to prove that she had committed suicide. They therefore returned a verdict of died "from inflammation of the stomach." Upon my return home I again set to work, and having poured a fine stream of water upon the stomach so as gently to wash off these light particles, so embarrassing, I took it into the sunlight, and carefully went over the whole mucous membrane (of the stomach) with a lens, inch by inch, By this means several small grains of a white body were obtained, very different from those previously found, appearing as opake white specks, very sparingly scattered over its surface and closely adherent to it. Their margins were more defined than any yet seen, its edges being sharp. Being observed amongst the patches of different white substances previously found, they stood somewhat boldly forward, inviting attention. Having, after a good deal of trouble, picked out with the point of a pin and the help of the lens about twenty or thirty of them, placing them one by one, as I did so, in a watch-glass with a little water, some fell down, as heavy bodies would do, others swam and floated away. At length, having sufficient of the heavy ones, I decanted the fluid and lighter particles, washing those remaining in the watch-glass again and again with a little cold wa-

ter. They were then dried and mixed with carbonate of soda and charcoal, as before, and having introduced the mixture into a reducing tube, upon heating it in a short time the metallac arsenic arose in its usual splendour. This I preserved. I again went over the stomaeh, and obtained a second portion of these particles. Some were preserved as specimens, others were reduced and then subjected to the usual tests, as additional evedence of their nature.

F. Not being very well satisfied at having missed this body in the fluid contents of the stomach, I now took the remainder of the contents of the stomach and intestines, about two-thirds of the original quantities found; they were treated as in A. Upon subliming this, I obtained a *slight* indication of metallic arsenic, a ring of fly-powder appearing; the metallic ring *was not* perceptible; it would do as a corroborative evidence only.

G. Took half a pound of the liver; having cut it into small portions and introduced them into a tubulated retort, they were boiled with concentrated nitric acid; violent effervescence took place from the escape of carbonic acid, nitrogen and nitrous acid gases, more and more acid being added from time to time; the fibrinous masses first disappeared; being converted into a fatty substance, this gradually disappeared also, leaving a deep orange-coloured solution; this was evaporated to dryness, and the operation again recommenced as before. When the decomposition had been pushed as far as possible without danger of the explosion which so often occurs towards the end of this process, it was stopped by slow evaporation to dryness again; the residue was dark chocolate-coloured, and weighed about two drachms.

H. This residue was now boiled in a solution of carbonate of potass; effervescence took place, an orange-yellow solution being formed, and the same dark-chocolate residue remaining. This was proved to be sesquioxide of iron with animal matter.

I. The solution was now separated by filtration, and slightly acidulated with acetic acid and a current of sulphuretted hydrogen passed through it: then boiled to expel the excess of this gas and allowed to stand for a time in order that the precipitate should subside; decanted the fluid and washed and dried the precipitate; part of this was now introduced into the reducing tube, as before, when upon heating it an *abundant ring* of metallic arsenic sublimated. This was preserved as a specimen, another experiment gave similar results, and farther, for by oxidising the ring of metal and dis-

solving in water and applying the tests for arsenious acid in solution, the characteristic precipitates were produced.

K. The residue from H, upon being farther examined, was found to contain no arsenic, but consisted of phosphate of lime, sesquioxide of iron, animal matter, and a portion of silica.

This operation, namely, the destruction of the animal matters of the liver by means of nitric acid, is a long and tedious process; yet it is an interesting one, and, by its results, fully repays one for the trouble, for in this case we see what minute portions of the poison remained in the organs where it is usually sought for. The *fluid* contents contained the merest possible trace, certainly not near enough to enable one to speak positively of its presence, although it is possible to prove the existence of one-thousandth part of a grain of this substance, and very probably even a much less quantity. It is true that by *great care and trouble* several little granules of the poison were obtained *from the coats* of that viscus, but the operation takes too much time to have allowed me to use this process before the inquest. Again, the *best* plan would have been, undoubtedly, to have destroyed the whole stomach by the same process; but the case appeared so clear, and such masses of evidence seemed already present, that this caution was apparently unnecessary.

The discovery of arsenic in the liver, when such small traces exist in the stomach and its contents, appears to be important; highly so, indeed; in fact, giving a means of finding this substance when all other processes have failed; and in *no case* of poisoning ought this viscus to be slighted at the *post-mortem* examination, the same care being used in removing it as in taking out the stomach and other viscera, for in the liver *the whole evidence* might exist.

Now to account for the sparing evidence of poison in the *fluid* contents. Pereira, in his "Materia Medica," vol. i., page 376, says, "Water, boiling, dissolves one twenty-fourth part of its weight of arsenious acid; on cooling it retains one-fortieth part of its weight; but by *cold digestion* it only retains one-thousandth or one five-hundredth of its weight. This is stated upon the authority of Mr. Taylor, in 'Guy's Hospital Reports,' vol. ii., p. 83." Could this have been the cause? I believe that it was. There is no evidence as to *how* the poison was taken, but it might have been swallowed in cold or tepid fluid. It was certainly suspended in fluid, since some granules of it still adhered to the stomach.

Onyxis—the nail grown into the flesh.—M. Gerdy does not approve of the avulsion of the nail as a means of curing this painful affection. The nail soon grows again, and with its growth returns the disease. Neither does he approve of the plan of contracting the point of the nail. Matters soon become as bad as ever. Neither is the plan of proceeding, according to which the diseased cushion of parts to the outside of the nail, although superior to the other two, to be greatly commended. The continual pressure upon the pulp of the toe by and by forces a new portion of flesh into contact with the nail, and renewed pain demands renewed interference from the surgeon. "The true and rational method of dealing with the affection," says M. Gerdy, "is to remove at a stroke, and obliquely, even beyond the middle of the pulp of the toe, the lateral and inferior parts which rise to suffer pressure from the edge of the nail, and to ulcerate under it." *Lond. and Edin. Monthly Journ. of Med. Sci.*

Dr. M'Cormac on Prolapsus Ani.—Reflecting on Dupuytren's procedure, it occurred to me that the same result might in a measure, at least while the child was at stool, be secured by careful manual traction. I immediately stated my views to the intelligent mother; she entered into them at once, and promised, if possible, to carry them into effect. According, when the child went next to stool, the skin exterior to the anus was drawn to one side by means of the fingers extended around. The little girl submitted to this with some reluctance, and complained that she could not evacuate her bowels. She was encouraged, however; a stool was obtained; from that day and date, now a month since, the bowel has not once descended. The stools, which previously were from two to four every day, have become much fewer, as well as of a more formed consistence and natural colour; while the child's health, spirits, and strength, are in other respects much ameliorated. There is now no prospect of the disease ever returning; the little girl requires comparatively little attendance; her mother, in fact, is only required to stand by, and in a short time, it is to be hoped, her onerous and anxious ministry will wholly cease.

As prolapsus ani is a very common affection coming frequently under the notice of every practitioner, and hitherto most difficult to remedy, this painless and bloodless mode of

treatment, which, it is reasonable te suppose. would be equally efficient in other cases, in relieving the sufferings of helpless childhood, and lessening a mother's cares, seems deserving of attention.—*Dublin. Journ.—Medical Examiner.*

Antidote for the Bichloride of Mercury.—M. Orfila, having lately performed a series of experiments, with a view to determine the value of proto-sulphuret of iron as an antidote for corrosive sublimate, has published, in the "Journal de Chimie Medicale," the results at which he has arrived.

1. That the proto-sulphuret of iron completely destroys the poisonous properties of corrosive sublimate, if administered in sufficient quantity *immediately after* the ingestion of the poison.

2. That, like the other most approved antidotes for this poison, it is inefficacious, unless given within about ten or fifteen minutes, by which time the deleterious action of the poison is generally sufficiently powerful to cause death.

3. That, although the sulphuret decomposes the corrosive sublimate more powerfully and completely than *albumen*, and. therefore ought to be preferred in all cases where it can be administered *immediately*, or in *a very short time*, after the poison; yet it will almost always be found that *albumen* may be more advantageously resorted to than the sulphuret of iron, in consequence of the latter being kept only by the pharmaceutists, and much time being, therefore, lost before it can be administered, while white of egg mixed with water, which is everywhere to be obtained, may be given without delay.—*Prov. Med. Journ.*

The Botanical Labours of Mutis.—A sketch of the labours of the extraordinary botanist of New Grenada, termed by Linnæus, "Phytologorum Americanorum Princeps," from the pen of Humboldt, translated by Colonel Wright, late governor of the province of Loxa, was read. It was Mutis who first made known the true characters of the genus Cinchona, and who discovered the quinquina tree in the woods of Tena, near Santa Fé de Bogota, and also in the route from Honda to Villeta, and at the Mesa de Chinga. The cinchona tree is now to be found on the whole length of the Cordilleras, at

an elevation of from seven hundred to fifteen hundred toises, upon an extent of about six hundred leagues from La Paez and Chuquisaca, to the mountains of Santa Martha and Merida. Mutis has the merit of being the first to distinguish the different species of cinchona, some of which, with downy petals, are much more active than others whose surface is smooth. He has proved that the active species, whose properties vary with the organic structure and form, should not be indiscriminately employed. Nor were the labours of Mutis confined to the genus Cinchona, most of the genera Alstonia, Vallea, Burmadesia, Escallonia, Manettia, Acæna, Brathys, Myroxylon, Befaria, Telipiogon, and many others, published in Linnæus's supplement, are due to the sagacity of the botanist of Santa Fé. Among the useful plants in medicine and commerce described by Mutis we must reckon the Phytrochia emetica, or ipecacuanha of the river Magdalena; the Toluifera and the Myroxylon, which yield the balsams of Tolu and Peru; the Winteria Granadensis, and the Alstenia theaformis, which latter furnishes the tea of Bogota, the infusion of which cannot be too strongly recommended to travellers who remain any length of time exposed to the rain of the tropics. To Mutis, also, is owing the discovery of the Mikania Guaco, the most powerful antidote to the bite of venomous serpents; it is of the family of the Compositæ, and is known in its native country by the name of the Vejuco del Guaco. Zoology, the atmospheric currents, and mathematics, also engage a portion of the attention of this extraordinary man. He never lost sight of the great problems of the *physique* of the universe. He travelled over the Cordilleras, barometer in hand. He determined the medium temperature of those table lands which appeared like islets in the middle of the ærial ocean. His taste for the physical sciences, and active curiosity directed to the development of the phenomena of organisation, and meteorology, maintained the empire of his mind to the last moment of his life. Of him, Linnæus truly said, *Nomen immortale quod nulla ætas unquam delebit.*

London Lancet, July 1, 1843.

Edinburgh Professors.—An evil is complained of at Edinburgh as contributing yearly to diminish the number of graduates at that university. It is said to be perfectly evident to all who are attending in the Scottish capital that of two of

the professors, the suns, although they blazed for a long series of years with much brightness, are now near their western horizon. The fact is mentioned in Edinburgh without any invidious feeling, because there are two parties always to be considered on these occasions, the professors and *the students*, —the teachers and *the taught*. Dr. Hope has long been one of the ornaments of chemistry in this country, and his discoveries most valuable; but his powers of lecturing and distinct articulation now fail him; and although his name will be remembered as long as science exists, his ability as a *lecturer* is now nearly extinct. Dr. Monro, too, has also lost his power of demonstrating, and has of late years acquired a manner of lecturing which is considered to have had a very depreciating effect on the attendance at Edinburgh. It is an object of serious inconvenience at any university when it has not at its disposal a retiring fund for professors. It is not desirable that such men as Drs. Hope and Monro should be exposed to the consequences which in their classes they have experienced during the last two or three years. Those professors have, in fact, no longer any command over them. As to the students who now avoid the university,—the Irish students, more especially, have gone to other universities—on inquiring the reason of any one who is acquainted with the fact, the reply is, "It is because the classes of Drs. Hope and Monro are imperative on students graduating, for it was the cheapness of college classes, the small expense of living in Edinburgh, and the fame of the professors, all combined, that rendered the university so desirable a place for many of the pupils. Amonst the students, generally, the remedy is considered to consist either in Drs. Hope and Monro retiring, or for the senatus to declare that their lectures shall no longer be compulsory."—*Ibid.*

New Astringent Preparation.—By digesting rhatany in sulphuric ether a brown extract is obtainable, perfectly soluble in distilled water, and when placed on the tongue giving a sensation of great astringency, followed by heat and dryness. This extract, invented by a Mr. Tissier, of Lyons, has been employed with success in that city in passive hæmorrhages, particularly those consequent on non-contraction of the uterus, as after prolonged labours and miscarriages. It has also been used with advantage for leucorrhœa, blennorrhœa,

gleet, &c. The dose in which it has hitherto been employed is a tablespoonful of a mixture composed of from five to ten grains of the extract in six ounces of some appropriate vehicle; in leucorrhœa, topical injections are recommended of from two to five grains of extract in a pint of barley-water. The presence of this preparation in the stomach gives rise, generally, to a sensation of heat in the epigastrium, though this rarely proceeds so far as to become painful; great thirst, and a pulse often as full as in gastritis, also prevail. These symptoms are, however, transient, and readily quelled by lemonade or other mild drinks. Should the injection irritate the urethra too greatly, it is only necessary to suspend its use for a short time.—*Gazette des Hôpitaux*, June 6th.—*Lond. Lancet.*

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TRAVELLING EDITORIALS.

We wonder if any portion of the literature of the Augustan age was *brought forth* in August? If so, the *labour* must have been *tedious*, and the *offspring* half ASPHYXIATED. We presume that the books which have fallen *still born* from the press, were written in this month. To travel, and observe, and ask questions and make notes, and think, and indite editorials, in a moist and stagnant atmosphere, with the mercury at 90°, is positively too bad. We would earnestly advise all who look up to us for recipes to guide them in writing things fit to be read, to avoid the dog-days; in which advice we coincide with the great critic:

> "The dog-star rages, and beyond a doubt,
> All bedlam or Parnassus is let out."

We might, in addition to this fresh and erudite quotation, cite other authorities in support of our position, but prefer to establish it by the character of our editorials.

Goitre.

Twelve months ago, we were wandering along the northern extremity of the Ohio and Erie canal, as we are now upon its south-

ern. We there saw a number of cases of goitre, and heard of many more. Not a few of them were in their first stages, and the testimony of the physicians with whom we conversed, went to show that the malady is decidedly increasing in frequency. We find the same thing here. Indeed, within the last four or five years the cases in the valley of the Scioto have greatly multiplied. The patients are nearly all women in early life. Our brethren treat the disease with iodine, administered without and within; and, in general, speak encouragingly of its effects. On the remote causes of this malady, we shall not venture this muggy afternoon to offer any speculations; but in place of them, will respectfully solicit, from all who may read this article, whatever facts they can give us concerning the disease, and the geological conditions under which, any where in the west, they have observed it to occur.

Return of Intemperance.

The Washington temperance excitement has greatly abated in the southern part of Ohio. This is no more than might have been, and was, indeed, (by all discerning men) anticipated from the beginning; for all excitements, even political fermentations, religious revivals, and medical broils, are paroxysmal. Among the drunkards who reformed, we have met with some relapses, but the number is not great. They are sufficient, however, to afford an unenviable pleasure to those who did not change their habits, and to the cold-hearted and incredulous lookers-on, who, throughout the glorious reformation, found happiness in thinking and announcing that *they* had nothing to do with it. Should every intemperate man who has subscribed the pledge, within the last four years, return to the bottle, there would still remain to society benefits of sufficient value to render the excitement of those years, one of the most important social events of the present century. Wherever we have wandered for the last eighteen months, we have seen evidence of this, in modifications of manners and customs and habits which are likely to endure, and exert a permanent influence on the greatest vice of society. An example of this, is presented in a "Circular," designed for travellers, issued in 1841, by Mr. D. Talmadge, of Lancaster, Ohio, one of the most respectable stage proprietors of the West. From his nine "General Rules," we extract the following:

"Every driver addicted to drunkenness will be immediately discharged upon my becoming acquainted with the fact."

"Every driver is strictly prohibited the use of ardent-spirits, while driving upon his route, under penalty of being discharged at once."

Whoever saw such salutary regulations as these, in past times? We can all remember when a *majority* of stage drivers were addicted to drunkenness! Mr. Talmadge addresses a few words to passengers, some of which we are tempted to transcribe.

"A custom sometimes exists among passengers of inviting drivers to partake of a social glass, as an evidence of their approbation and respect, and often it is complied with from mere unwillingness to refuse. This thing though small in itself, may lead to the formation of a habit which will end in drunkenness, bringing ruin upon the unfortunate drivers, entailing misery and want upon his family. A trifling present, which would procure some small necessary of life for wife or children, would much better answer the purpose intended, while it would not form or strengthen a passion for strong drink."

Let no one smile or fret at our transcribing this paragraph. It embodies, in simplicity of language, a momentous principle—the influence of the higher upon the lower classes of society. As long as that influence is badly directed, intemperance, and the diseases of body and mind which it originates, will be kept up. Physicians are men of influence, and we call upon them. every where, to exert the moral power with which their profession has endowed them in the suppression of one of the most prolific causes of disease, which exists, or ever has existed, among men.

Medical Police of Jails.

Every county jail in the United States, has its physician, but as yet these officials have done little, we believe, towards improving the cleanliness, ventilation, and police of these receptacles of the dissolute. Our attention has been turned upon this neglected, but not unimportant subject, by a sheet of printed "Rules for the Regulation and Government of the Jails in the Eighth Judicial District of Ohio," drawn up by its President Judge Hanna. By a late law of the State, the presiding judges are made the inspectors of the county jails, and authorized to direct their police. We shall copy from Judge Hanna's rules, such as relate more immediately to the health of the culprits, in the hope they may be adopted elsewhere:

"The Sheriff shall furnish each and every room, when occupied, with a broom, a bucket, pitcher or jug, containing pure wholesome

water for drinking, and a wash bowl, bason, or other suitable vessel for washing the face and hands therein, with a sufficiency of soap and clean water for that purpose, a towel, and combs for the head; and shall require every prisoner to wash his or her face and hands, and comb his or her head, every morning before breakfast; also, to make his bed and sweep his room.

"He shall cause every prisoner having a beard, to be shaved at least once a week, and the hair of males to be cut as often as may be necessary for cleanliness and comfort.

"Every prisoner shall be required to change his, or her under-clothes, at least once a week.

"When any prisoner, except a debtor, has not a sufficiency of clothing to keep him, or her, comfortable and clean, it shall be the duty of the Sheriff to furnish the same, and cause the clothing of all prisoners (debtors excepted) to be washed and cleansed as often as may be necessary.

"Debtors shall in no case be confined with idiots, lunatics, insane or other prisoners. Prisoners charged with offences or crimes, shall not be confined with those convicted, males with females, colored with white prisoners, or youth with old offenders, where there are a sufficient number of rooms in the jail to admit of their separation.

"The Sheriff shall supply a bed-stead and bed with suitable clothing, for every two persons confined in jail, cause the sheets thereof to be changed and washed once a week, and the other clothes as often as necessary—the beds to be aired and sunned at least once a month, and where straw or chaff is used, cause the same to be emptied and filled with a fresh article at least once in six months; all the rooms to be sufficiently ventilated.

"No spirituous, malt, or fermented liquors, shall in any instance be allowed to any prisoner unless prescribed by the physician in actual attendance on the prisoner.

"The Sheriff shall at suitable times, at the request of any prisoner or prisoners, permit the clergy to visit the prison for instruction or religious exercise.

"He shall furnish each room, occupied by a prisoner capable of reading the same, with a copy of the Bible, and see that the same is not abused, injured, or destroyed."

The physician who is employed to attend on a prison, should not regard his duty as discharged by prescribing for the sick. Properly understood, it embraces an attention to every thing which can effect the health and reformation of the convict. But neither is to be promoted by personal and domestic filth, damp walls, intemperance, crowded cells, and foul air, against the whole of which the medical officer should enter a solemn protest. D.

Portsmouth, Ohio, August 1843.

TRAVELLING EDITORIALS AND TRAVELLING EDITORS.

We perceive that our contemporary of the ***Boston Medical and Surgical Journal***, has been writing travelling editorials. We had the pleasure of meeting with him a short time since, among what a familiar of ours calls the "madcap levellers of the west;" and, faith, we were taken all a-back (we *must* perpetrate a sea phrase now and then) by seeing such a *veteran* in medical journalism looking *so* young. Not, indeed, that we had any sort of idea that he was "sightless, and old, and melancholy;" but we certainly *did* expect to see the crow's feet about the eyes, and mayhap something of a "frosty pow." We comfort ourselves for such a disappointment by reflecting that he will come up to our expectations by and by, and that meanwhile we shall see him here again next summer. May he live a thousand years, and may his shadow never be less! C.